MARCH 28, 1960

PAPER TRADE JOURNAL

The Pursuit of Finishing . . .
An expert suggests answers to some of the problems owned by this "orphan" of the industry

•

How Starches From Milo Grains Improve Coatings and Sizings

•

Belt Conveyors In The Woodyard Require Less h.p., Maintenance

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since 1859

For Economical
Means Of Producing
Brown Shades

See Page 4

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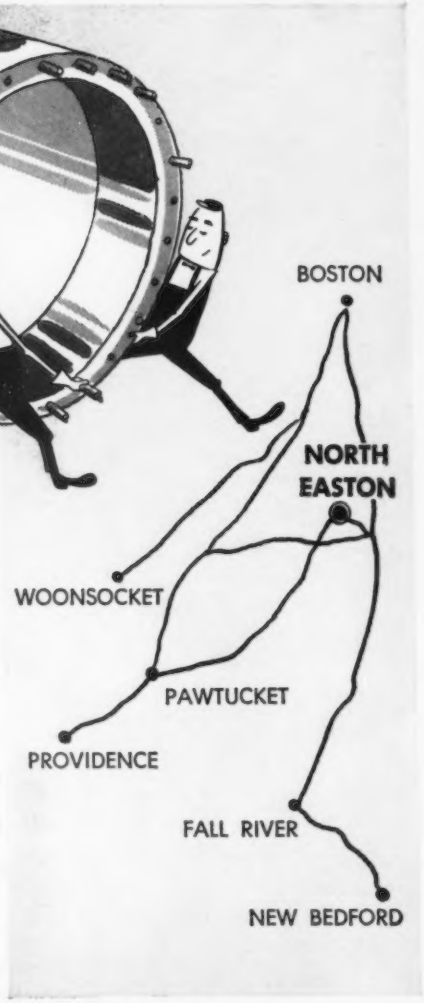

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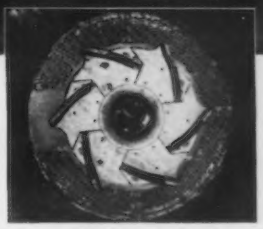
For further information, please write to The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.



The rotor and extraction plate

View of vortex and stock flow at 8-9% consistency

Emerson TRIPLE ATTACK **PULPER**

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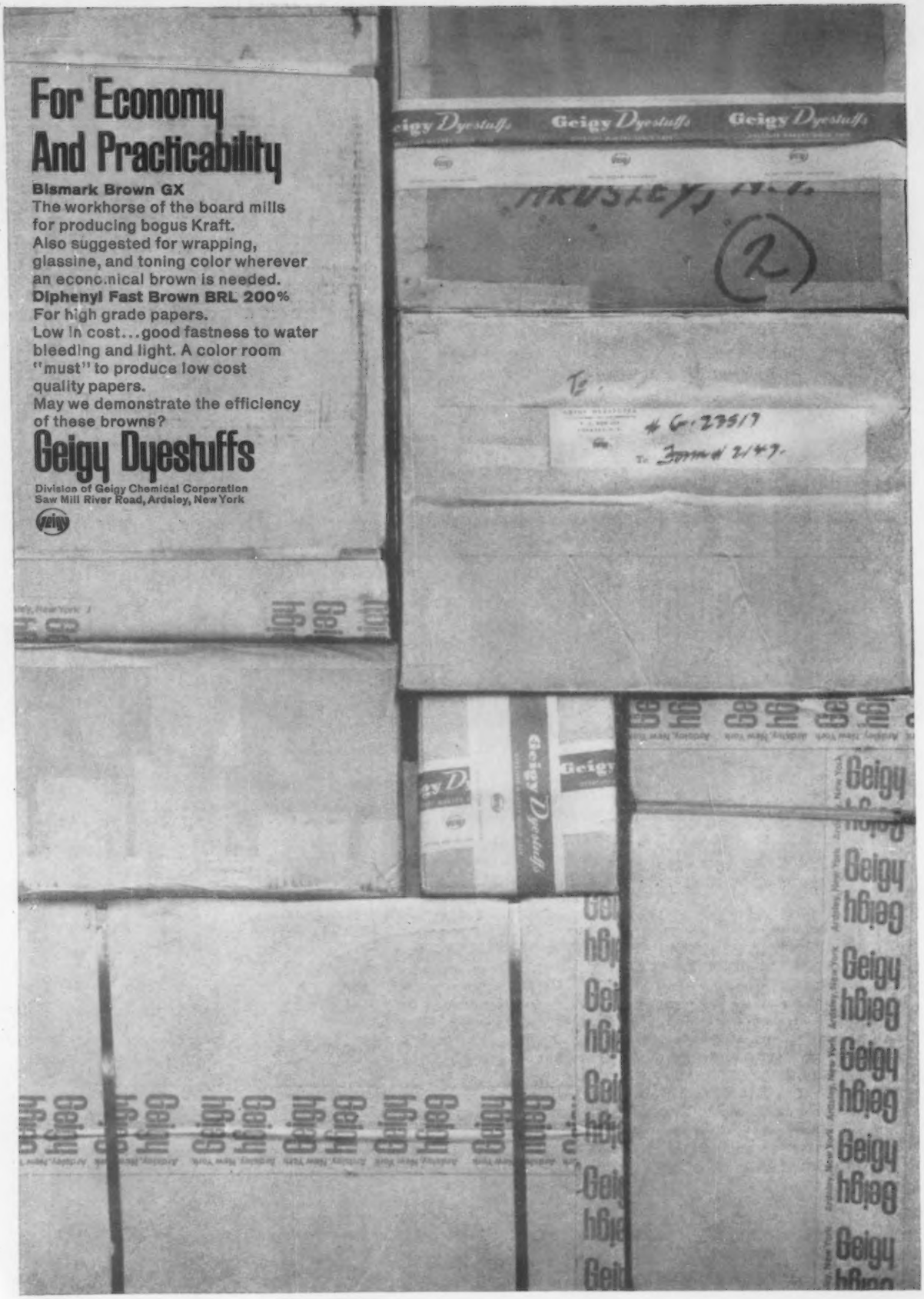
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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

March 27-30. National Paper Trade Ass'n. Annual Meeting, Waldorf-Astoria, New York, N. Y.

May 23-25. TAPPI Coating Conference, Edgewater Beach Hotel, Chicago, Ill.

June 14-16. TAPPI Bleaching Conference, Edgewater Beach Hotel, Chicago, Ill.

June 7-9. PIMA National Meeting, St. Francis Hotel, San Francisco, Calif.

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"Buffalo" Resin-Bonded Fiber Glass Fume Fans are highly resistant to such chemical corrosives as acids, salts, gases, organic materials and others. They are suitable for temperature applications up to 300° F. The fan housing is constructed entirely of fiber glass. All exposed parts of the factory-balanced rotor are encased in thick fiber glass. Standard capacities range up to 34,000 cfm at pressures to 10" static. Investigate the advantages of "Buffalo" Type "FG" Fume Fans—versatility, lighter weight, reasonable cost, dependability. Write for Bulletin FI-511.

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Trends

GNP to Show Jump 1st Quarter

Gross National Product (total national production of goods and services) in the first quarter of this year will show a substantial increase over the last quarter of 1959, predicts the U.S. Commerce Dept.

Paper & Board Mill Rates Holding Up

Paper mills operated in excess of 97% of capacity during the first half of March and board mills at 94%.

Pulp Prices Unchanged But Firmer

It appears that pulp contract prices for the second quarter will remain at the same basic level as for the first quarter. There is still some confusion in the "brightness-price pattern" which began in the first quarter. Sales of "so-called" off-grade pulp are said to be less frequent. Spot prices on foreign imports have firmed.

Newsprint Output & Use Sets Records

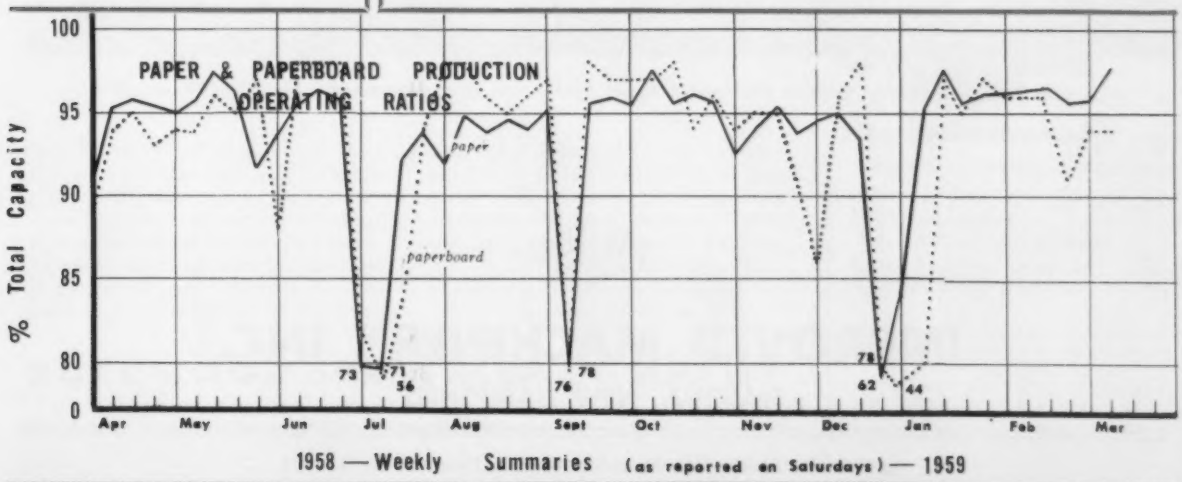
Production of newsprint in North America during February, 1960, amounted to 690,735 tons—an all-time peak for any February on record—and was 12.2 per cent above the February, 1959 volume. U.S. newsprint consumption continues to set new records with another record high in February, 1960, as well as the first two months of this year.

Kraft Paper & Bag Prices Rising

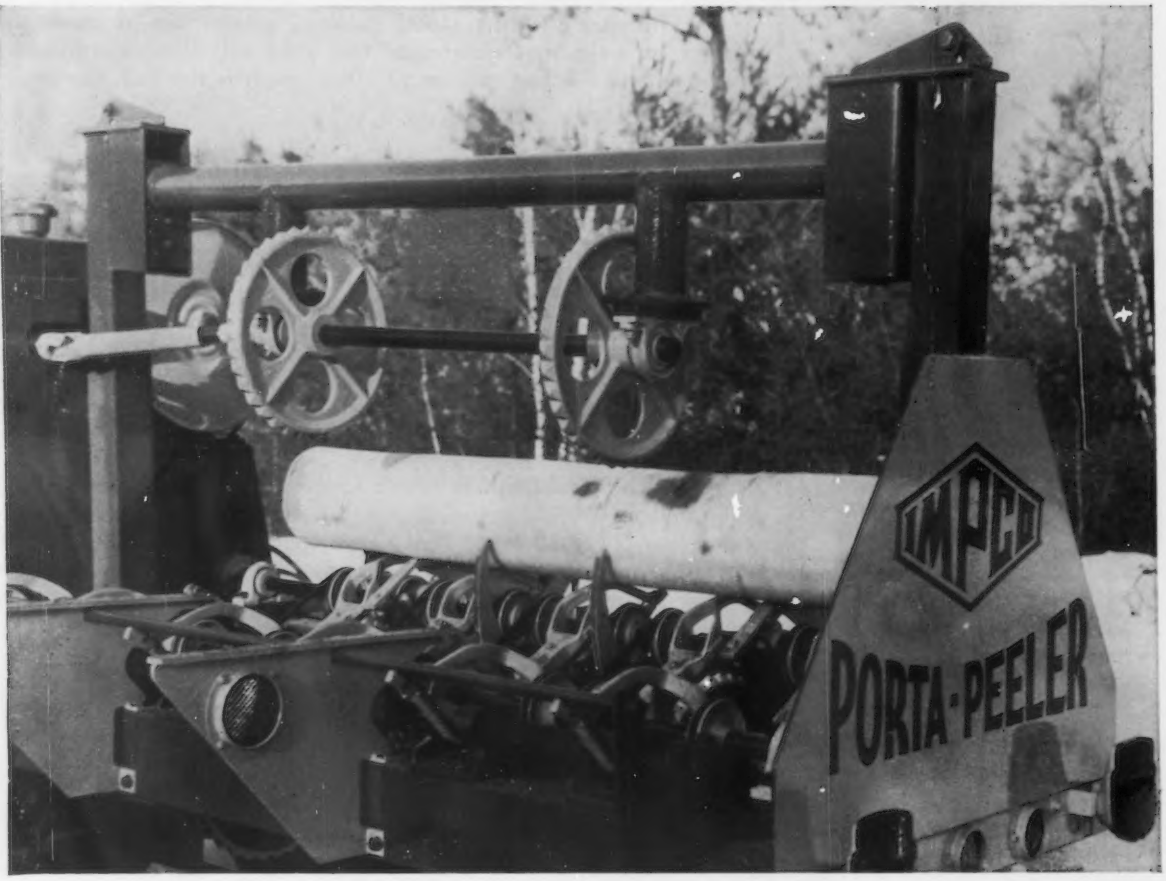
Price increases for multiwall bags and kraft papers were reported to have been announced or under consideration by a number of major producers.

Tapioca use in Corrugating Increasing

Radical increase in the use of tapioca in corrugated box manufacture is reflected by the 1959 tapioca import figures, which are approximately double those of 1955, according to Morningstar-Paisley, Inc.



PORTA-PEELED PULPWOOD!



This is the Impco Porta-Peeler in action. Pulpwood contractors and users are receiving it with tremendous interest because of its efficiency and high capacity. Pulpwood suppliers can cleanly bark three to six cords per hour depending on log length. Crooked — knotty — frozen hardwoods — logs up to 26″ in diameter? No problem! Porta-Peelers can be completely mobile for wood road operation or permanently installed in wood concentration yards.

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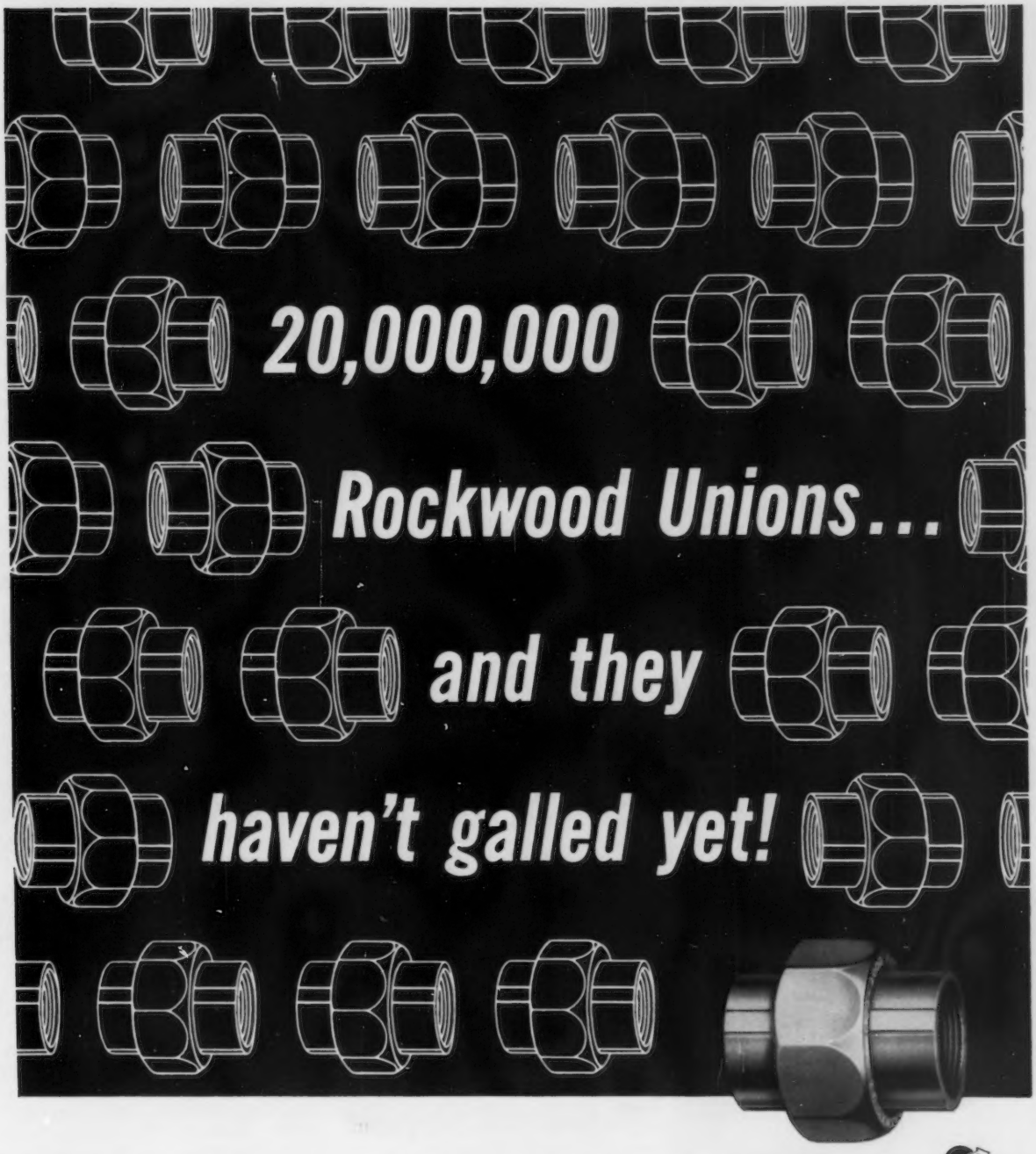

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PAPER TRADE JOURNAL

WEEK OF MARCH 28, 1960

BCFP to Spend Nearly $1 Million

British Columbia Forest Products, Ltd., will spend $850,000 during the next eight months at its bleached kraft pulp mill at Crofton on Vancouver Island.

Work will start in a few weeks on the installation of new equipment which will provide greater flexibility to the mill operations. C. D. Dickey, Jr., president of BCFP, indicated that "the emphasis in this program will be on improved manufacturing efficiencies and a further upgrading of quality standards rather than on an increase in production."

The Crofton mill commenced operations during the winter of 1958. Shipments are made directly by both deep-sea vessels and rail cars to destinations throughout the world.

Mexican Plant Starts Up Continuous Straw Pulp Mill

Empaques de Carton Titan, S. A., in Monterrey, Mexico, reports the successful start-up of its new 60-ton (metric) per day Pandia continuous pulp mill, producing unbleached pulp from wheat straw for corrugating medium.

The Pandia continuous digester, built by Black-Clawson Co., consists of two 42-inch digester tubes complete with Pandia discharger, chemical supply pump, drives and live bottom blow tank.

Parsons & Whitemore furnished for this project principal items of stock preparation equipment including a hydrapulper, pumps and stock agitators.

Cramer Force Buys Logan Paper

Cramer Force Co., Rochester, N. Y., has announced purchase of Logan Paper Co. of Auburn, N. Y.

Logan Paper was organized in 1925 by William B. Dunning who since then has been it's president and owner. Raymond F. Unger, president of Cramer Force, said Logan Paper would be operated as a wholly owned subsidiary and all present personnel would be retained.

Manitoba Paper Mill Again Mooted

A European-Canadian company has opened negotiations with the Manitoba provincial government to build a $45 million pulp and paper mill in northern Manitoba, a government spokesman said recently.

The mill is proposed for a densely forested area, about 400 miles north of Winnipeg.

Papercraft Purchases LePage Tape Plant

Papercraft Corp., Pittsburgh, Pa., has announced a multi-million dollar purchase of the physical assets of the LePage division of Johnson & Johnson. The transaction was for cash at an undisclosed price.

The assets of LePage include large plant facilities on a 62-acre site at Gloucester, Mass. Its major products include cellophane tape and other pressure sensitive tapes, as well as a line of consumer adhesives.

LePage is one of the pioneers in the adhesive field with offices and warehouses across the nation. It also markets its products throughout the world.

Joseph M. Katz, president and chairman of Papercraft, said LePage's acquisition is part of a long-range growth program focused at a complete line of consumer packaging products. He said:

"LePage will make our combined pressure sensitive tape facilities among the largest in the industry."

Papercraft recently built a pressure sensitive tape facility at its Jeannette plant. It also operates a plant in Pittsburgh.

Purchase Mapped By St. Regis Paper

St. Regis Paper Co. announces plans to acquire Howard Paper Mills, Inc., Dayton, Ohio, through a stock exchange. Howard has paper mills in Dayton, Franklin, and Urbana, Ohio, and an envelope plant at Dayton.

Brown Company Board Re-organization

As a result of the sale of Canadian holdings in Brown Co. to T. M. Evans and his associates, two new directors are planned. These are: C. L. Holbert, president of H. K. Porter Co., rubber goods manufacturer, and W. A. Greene, advertising consultant. It is proposed to reduce the number of directors from fourteen to nine. For the first time there will be no member of the Brown family on the board.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending March 12, 1960, at 97.6 per cent compared with 97.2 per cent, revised for the preceding week. The ratio was 93.9 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending March 12, 1960, at 94 per cent, compared with 94 per cent for the preceding week and 93 per cent for the corresponding week a year ago.

(Detailed statistics on page 41)

R. B. Robertson, Sr.

D. J. Thomson

New Executive Chiefs for Champion

K. R. Bendetson

The board of directors of The Champion Paper and Fibre Co., Hamilton, Ohio, have elected to head the company, Dwight J. Thomson as chairman of the board and Karl R. Bendetsen as president. The text of the election announcement follows:

"At a special meeting of the board of directors action was taken in connection with the election of executive officers to succeed to the senior management of the company. These steps were taken because of the untimely passing of Reuben B. Robertson, Jr., who was president and chief executive officer.

"Reuben B. Robertson, Sr., who has been chairman of the board and served as head of the company for many years, asked that he be relieved of the chairmanship, and was elected honorary chairman. He will continue as a member of the board.

"Directors then elected to head the company, Dwight J. Thomson as chairman of the board and Karl R. Bendetsen as president, both of whom have been serving as executive vice presidents. Mr. Bendetsen was also elected to the board of directors to succeed the late Reuben B. Robertson, Jr."

The election of Dwight J. Thomson, to the top post carries on a family tradition of leadership in the company, now one of the country's largest papermaking firms.

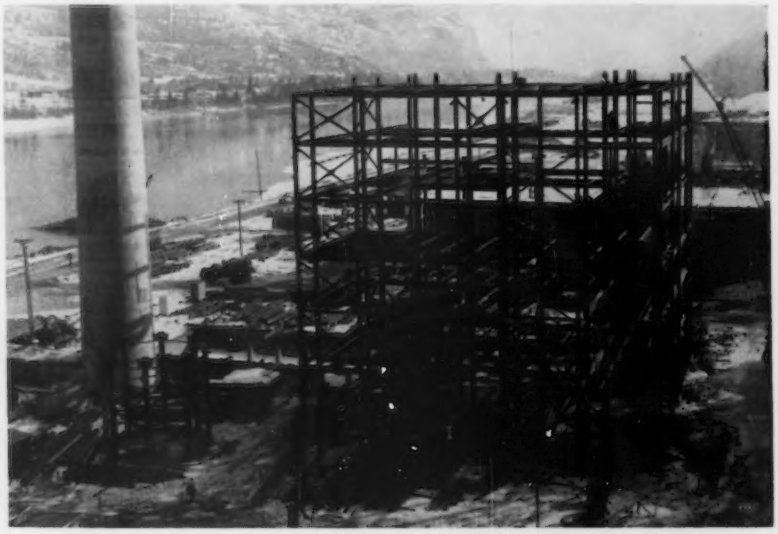
His grandfather, Peter G. Thomson, founded the firm in Hamilton in 1893. His uncle, Alexander Thomson, was president from 1931 to 1935; his father, Logan Thomson, from 1935 to 1946; his uncle, Reuben B. Robertson, from 1946 to 1950 and from 1955 to 1957, and his first cousin, Reuben B. Robertson, Jr., from 1950 to 1955 and 1957 to 1960.

Mr. Bendetsen joined Champion in 1952 following a distinguished career as a lawyer, soldier and administrator. He had been Assistant Secretary of the Army, Under-Secretary of the Army, Director General of the nation's principle railroads when they were being operated by the Army following World War II, and Board Chairman of Panama Canal Co.

At Champion, Mr. Bendetsen had been vice president and general manager of the firm's mill operations in Pasadena, Texas; vice president, pulp and paper manufacturing for the entire firm, and executive vice president, operations group.

Research Studentships Offered by Wiggins Teape

The Wiggins Teape Group invites applications for two research studentships, each to a value of £500 p.a. sterling. These studentships are designed for overseas graduates wishing to gain experience in the British Paper Industry and to undertake fundamental studies in the properties and structure of paper. The studentships will be tenable at Butler's Court, Beaconsfield, where students will be able to make use of extensive modern equipment. There will be no objection to students using these studentships in conjunction with other grants. Applications should be sent to the Manager, Wiggins Teape Group Research Organization, Butler's Court, Beaconfield, England.



CELGAR LTD.'S bleached kraft pulp mill at Castlegar, B. C., is progressing rapidly. Concrete work is more than 75 per cent completed and many pieces of equipment are being moved into position. The first pulp mill off tidewater in B. C., Celgar will go on stream early in 1961 and by March expects to be producing 500 tons of high quality bleached kraft pulp daily. Shown in photograph is the stack and recovery building with the central administration building, pulping group, machine room and pulp warehouse in the background.

PAPER PEOPLE

C. A. Shoudy

W. J. Verross

Westvaco Names Executives at S.C. Plant

Two executive appointments have been made at West Virginina Pulp and Paper's North Charleston, S. C., plant.

Named assistant manager is Charles A. Shoudy. Mr. Shoudy will serve as technical advisor to the division manager and will be responsible for product quality and the activities of technical service, product development, engineering and maintenance. He joined West Virginia Pulp and Paper in 1939, and has a degree in mechanical engineering from Stevens Institute of Technology.

William J. Verross has been appointed to the new job of general superintendent, operations, of the Charleston plant with responsibility for the finishing room, off-machine operations, paper mill, pulp mill, recovery and power departments. He was previously assistant pulp mill superintendent at West Virginia's Covington plant. Mr. Verross holds a degree in chemical engineering from Ohio State University. He joined Westvaco in 1947.

St. Regis Paper Awards Fellowships

St. Regis Paper Co. announces that in recognition of the importance of scientific forestry methods and tree genetics it again offers two Fellowships in Forestry in addition to five undergraduate scholarships in forestry. The Fellowships, valued at $1,000 each, are given for one year.

Winners of the two St. Regis Fellowships in Forestry this year are John P. Butt of the New York State College of Forestry and Gerald R. Stairs of the Yale University School of Forestry.

J. P. Butt

G. R. Stairs

Standard Packaging Promotes Miles

Edwin F. Miles, has been promoted to assistant general sales manager of the Standard Packaging Corp., effective April 1. He will work out of the Chemical Fine Paper and Board Division of Standard Packaging in Holyoke, Mass., but will cover the major part of the United States in his new duties.

Mr. Miles has been sales manager of the Fonda Division of Standard Packaging at St. Albans, Vt., since 1954. From 1949 to 1954, he represented the Missisquoi Corp., another affiliate of Standard Packaging, in the New England region.

L. G. Brown

Union Bag-Camp Fills Newly Created Post

Union Bag-Camp Corp. has announced the appointment of Lawrence G. Brown to the newly created post of director, research and development for the company.

A graduate of the Massachusetts Institute of Technology, Mr. Brown has had extensive experience in staff engineering, research and development. Prior to joining the Union Bag-Camp organization, he was associated with the Scott Paper Co. and, most recently, the Nasuha Corp.

Rayonier Adds Ryan To Sales Department

Rayonier, Inc., has announced the addition of Thomas P. Ryan to its sales organization. Prior to his appointment to the company's domestic sales staff, Mr. Ryan had been manager of the Rayonier order department with considerable experience in handling the full range of Rayonier products.

Initially Mr. Ryan will represent the company's wood pulp sales and services to the paper industry in selected areas of the eastern states.

D. J. Howard

J. H. Proctor

Westvaco Advances Two at Covington

Dale J. Howard and John H. Proctor have been promoted to new positions with the Bleached Board Division of West Virginia Pulp and Paper in Covington. Mr. Howard has been appointed safety director and Mr. Proctor has been appointed director of training and personnel research.

Mr. Howard first started with the paper manufacturer at the Charleston, S. C., mill in 1946 as a digester helper. Later he entered the University of North Carolina and graduated in 1950 with a bachelor's degree in industrial relations.

After employment with a textile company for a year and work with Radio Corp. of America at Pulaski, Va., Mr. Howard rejoined Westvaco at Covington during 1952 in the post of job analyst. In 1954 he was advanced to assistant safety director. Since that time the mill has set three of its four safety records of more than a million man-hours worked without a lost-time injury.

Dr. Proctor accepted the post of assistant training director in 1958 following his graduation from Purdue University where he earned his master's and doctorate degrees in industrial psychology. Previously he studied at Davidson College for his bachelor's degree.

In addition to teaching at Purdue, Dr. Proctor gained experience with Illinois Central Railroad, ESSO Standard Oil Co., and Standard Oil Co. (N. J.) before coming to Covington. He has been instrumental in setting up the four year apprentice training program in the mechanical and electrical trades at the Bleached Board Division and has been conducting personnel research studies.

Boise Cascade Kraft Promotes Hickey

Russell J. Hickey, formerly technical sales and sales service representative for Boise Cascade Kraft, has been named sales manager of Boise Cascade Kraft. He joined Boise Cascade in December of 1957 as superintendent of the Wallula, Wash., plant. In 1959 he transferred into the sales division of Boise Cascade Kraft.

Mr. Hickey, a graduate of the University of Wisconsin, will maintain his office at 2800 17th St., San Francisco.

Sorg Names Assistant To Vice President

D. A. Driscoll has been named assistant to the vice president in charge of operations for Sorg Paper Co., Middleton, Ohio.

Eugene Benge of Ashville, N. C., has resigned as a Sorg director.

Pollock Paper Names Hummel to Columbus Post

Pollock Paper Co. has announced the appointment of David R. Hummel as sales manager of the Paper Mill Division at Columbus, Ohio. Pollock Paper Co. is a division of St. Regis Paper Co.

Mr. Hummel formerly served as assistant sales manager of the Paper Mill Division in Pollock's general offices at Dallas, Tex. After March 21, he will headquarter in Columbus. Prior to joining Pollock, Mr. Hummel spent five years as a sales representative with Minneapolis-Honeywell. He is a graduate of Ohio Wesleyan University.

D. R. Hummel

Bowaters Picks Head For Plant in Calhoun

George P. Hobbs of Corner Brook, Nfld., has been appointed head of Bowaters Engineering and Development Inc.

Mr. Hobbs, who will succeed K. O. Elderkin upon his retirement later this year, is mill manager of Bowater's Newfoundland Pulp and Paper Mills, Ltd.

Appointment of Mr. Hobbs will make him head of the central engineering and research activities of the Bowater organization in North America.

S. F. Teague

Rayonier Fills Newly Created Sales Post

In a move to broaden further its marketing position in dissolving and paper pulps, lumber and the new silvichemicals, Rayonier Inc. has appointed Sam F. Teague to the newly created position of assistant general manager of sales. Mr. Teague, who will report to Michael A. Brown, general manager of sales, comes to Rayonier after 15 years as a sales and marketing executive with Monsanto Chemical Co.

A native of Birmingham, Ala., Mr. Teague graduated in 1939 from Auburn University (formerly Alabama Polytechnic Institute, Auburn, Ala.) with a BS degree in chemical engineering. During World War II he served with the U.S. Army in the European Theater of Operations as a lieutenant colonel.

(Continued on page 38)

Our stocks are as different as different can be
But on one thing we're all of us quick to agree
For big volume screening at low cost per ton
This BIRD-JONSSON Screen is by far the best one

And that goes for knotting — bull screening — tailings screening — taking the knots and chips out of black liquor ahead of the brown stock washers — screening waste stocks ahead of the fine screens — screening straw stocks and stocks from refiners, defibrators or masonite guns.

BIRD MACHINE COMPANY, South Walpole, Mass.

Regional Offices: ATLANTA 9, GEORGIA • EVANSTON, ILLINOIS • WALNUT CREEK, CALIF.

Canadian Manufacturers of Bird Machinery: CANADIAN INGERSOLL-RAND COMPANY, Ltd., Montreal

BIRD-JONSSON SCREENS

NEWS OF CONVERTERS

Metal Edge Industries Buys West Coast Firm

Metal Edge Industries, a national full-line paper box and paperboard specialties manufacturer with headquarters in Barrington, N. J., has acquired the Universal Container Co. of South San Francisco, Calif., according to James Eiseman, president of Metal Edge Industries.

Mr. Eiseman also stated that the new corporate division, the fifth acquisition for Metal Edge in recent years, will be known as Metal Edge Universal, giving the parent company diversified West Coast manufacturing facilities for Metal Edge boxes for industry, materials handling and inventory control items, set-up boxes, folding boxes, corrugated boxes and paperboard specialties.

It was also disclosed that Universal's management, headed by Albert DeNola, president; and Alfredo DeNola, vice president, will continue with the new corporation.

"The formation of this new division of Metal Edge Industries," said Mr. Eiseman, "greatly increases the capacity of our nationwide box manufacturing facilities, and the consolidation of our existing West Coast operation with the new plant will enable us to give customers even better service."

Cox to Head SFI Container Division

Joe D. Cox, former West Coast container executive, has joined Southwest Forest Industries, Inc., as vice president and manager of the firm's newly formed container division.

J. B. Edens, president of the Arizona corporation, said Mr. Cox has already taken over his new duties, which include active direction of Southwest's new corrugated container plant in Glendale, Ariz.

Mr. Cox comes to Phoenix from Fullerton, Calif., where for the last three years he was sales manager for Growers Container Division of St. Regis Paper Co. For several years prior to joining Growers, he was western division sales manager for Milprint, Inc., of Milwaukee, Wis.

W. G. Genne

Dixie Cup Promotes Three Officials

Promotion of three officials of the Dixie Cup Division of American Can Co. has been announced.

W. G. Genne, vice president in charge of marketing, was appointed vice president and assistant general manager of the division.

J. L. Coldren, formerly assistant to the marketing vice president, was named vice president in charge of sales.

W. E. Bachman, formerly manager of the expansion planning department, becomes vice president in charge of a new facility planning and control department. The expansion planning department is discontinued.

All three men are from Easton, Pa., Dixie Cup's home city. Mr. Genne has been with Dixie Cup since 1927, Mr. Coldren since 1929 and Mr. Bachman since 1928.

Diversification Changes Rap-In-Wax Company Name

The Rap-In-Wax Paper Co., general offices in Minneapolis, has changed its name after 33 years. The new name: "The Rap-In-Wax Co.," according to John J. Ahern, Jr., president, and P. M. Grieve, executive vice president, became a necessity because of expansion and diversification of the company's business.

"In 1926," said Mr. Ahern, "we dealt exclusively in waxed bread wrappers and four years later we put the first household wax paper roll on the market; but now wax paper is only a part of our operation. As an example, we produce more foil bread wraps than any other packager, and are big nationally in printed films and foils. Then too, our purchase of plants in Paterson, N. J., and Columbus, Ga., tended to broaden our line of products. With these changes, we thought the word "Paper" too restrictive." The new name is effective immediately.

American Paper Products Purchases Cleveland Firm

American Paper Products Co., Philadelphia, Pa., recently purchased virtually all capital stock of The Ajax Paper Tube Co., Cleveland, Ohio. The acquired plant will be operated as a subsidiary with its existing management and organization.

The purchased plant, a completely integrated paper tube and fibre can operation represents the sixth unit for the American Paper Products Co. The firm's main plant is located in Philadelphia, Pa., with branch plants in Waltham, Mass., Totowa, N. J., Cleveland, Ohio, Fort Madison, Iowa, and its paper mill at Lancaster, Pa.

General manager of the Cleveland plant is John Erdie, Jr. The American Paper Products Co. is owned by L. J. Perelman and R. G. Perelman of Philadelphia, Pa.

Frye Mfg. To Establish Eastern Branch Factory

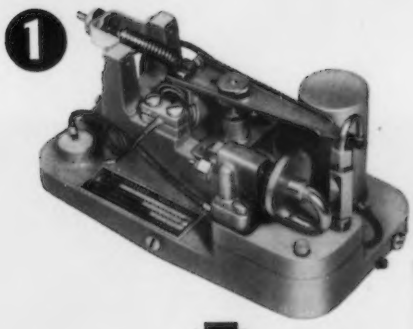
The Frye Manufacturing Co. of Des Moines, producer of "One-Time" carbon papers, announces that it will establish an Eastern branch factory near Newburgh, N. Y.

The company has signed a contract for construction of a 40,000-sq. ft. plant in New Windsor, a mile south of Newburgh at an approximate cost of $300,000. It will be a single story design, on a five-acre site. The company plans to begin operations about June 1. Robert Barkus from Des Moines will be the plant manager for the New Windsor factory.

U. S. Envelope Promotes Hibbard

R. Ralph Hibbard has been appointed assistant general purchasing agent of the United States Envelope Co., Springfield, Mass. Mr. Hibbard has been in the purchasing department of the general offices of the company since December 1956, following a year's sales training with the Kellogg Envelope Division, Springfield.

(Continued on page 19)



Taylor gives you the answer to temperature control that's

LOW ON COST

HIGH ON QUALITY!

The instruments shown here, all thoroughly field-tested and proven, combine Taylor dependability and accuracy with low initial cost. They're ideal for applications such as:

- Temperature control for Bleach Plant Mixers
- Brown stock washers
- Tower interface level
- For any application where a record of temperature measurement is not important

1 **Taylor SENSAIRE* Pneumatic Temperature Transmitter** operates within limits of minus 30°F. to plus 1200°F. with simplified adjustments, excellent repeatability and unusually fast response. Range spans of 50°, 100°, 200° and 400°F. Sturdy, compact, force-balance, mercury-filled thermal system, temperature compensated. Accurate to well within 1% of rated range below 550°F.; 1½% above 550°F. Ask for **Bulletin 98293.**

2 **Taylor TRANSET* Indicator** permits plug-in mounting of miniature Controllers. Exceptionally stable and drift-free set point adjustment, insuring stable output even with wide temperature variations. Continuous valve output. Simple automatic-to-manual switching. Maintenance and servicing is simplified by snap-in indicator gage, easily removed without disturbing piping or process control. Ask for **Bulletin 98097-K.**

3 **Taylor TRANSCOPE* Controller** is exceptionally sturdy and adaptable. It will stand up to vibration, rough handling in shipment or mechanical abuse in service and maintain its repeatability under widely varying ambient temperature conditions. Can be quickly adapted to changes in operating conditions or processing requirements. Response to adjustments is extremely fast. Motion-balance design simplifies maintenance. Ask for **Bulletin 98278.**

4 **Taylor LIN-E-AIRE* Valve Actuator** sets new standard in precision control. Has greater power, size for size; constant diaphragm area for improved control; precision alignment for friction-free stroking. Strength of drawn steel diaphragm case permits high pressure operation. New design gives long stroke with constant areas. Nylon-reinforced Buna-N diaphragm with rolling action insures long life and low hysteresis. Ask for **Bulletin 98316.**

Ask your Taylor Field Engineer for more details. Or write for appropriate Bulletin. Taylor Instrument Companies, Rochester, New York or Toronto, Ont.

*Trade-Mark

Taylor Instruments **MEAN ACCURACY FIRST**

US RUBBER ROLL COVERINGS

International Paper's newest mill has its No. 2 Beloit machine roll on U.S. Rubber roll coverings

First Top Press Roll	42" x 305"—50 P and J	Top Breaker Stack	42" x 305"—25 P and J
Second Top Press Roll	42" x 305"—40 P and J	Table Rolls	14½" x 304"—0-5 P and J (Balanced at 2,000 F.P.M.)

ALL HAVE U.S. RUBBER ROLL COVERINGS

Located in the Pine Bluff, Arkansas, mill of International Paper, this No. 2 Beloit machine turns out 475 tons of bleached kraft board *per day.*

"U.S." coverings are selected because of their performance on large, fast machines. These rolls have resilience, uniform hardness, smoothness of grain built into them. They give the right finish to pulp products, always "run clean" and do not pick up fibre.

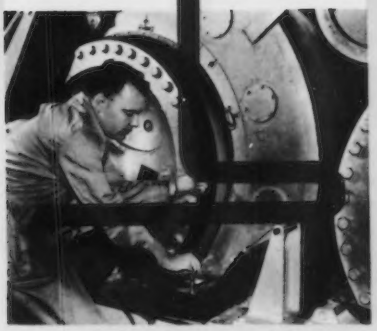
"U.S." puts roll-covering specialists at your disposal to study your mill requirements at first hand, for both new rolls and re-covering. Get in touch with us at address below.

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.



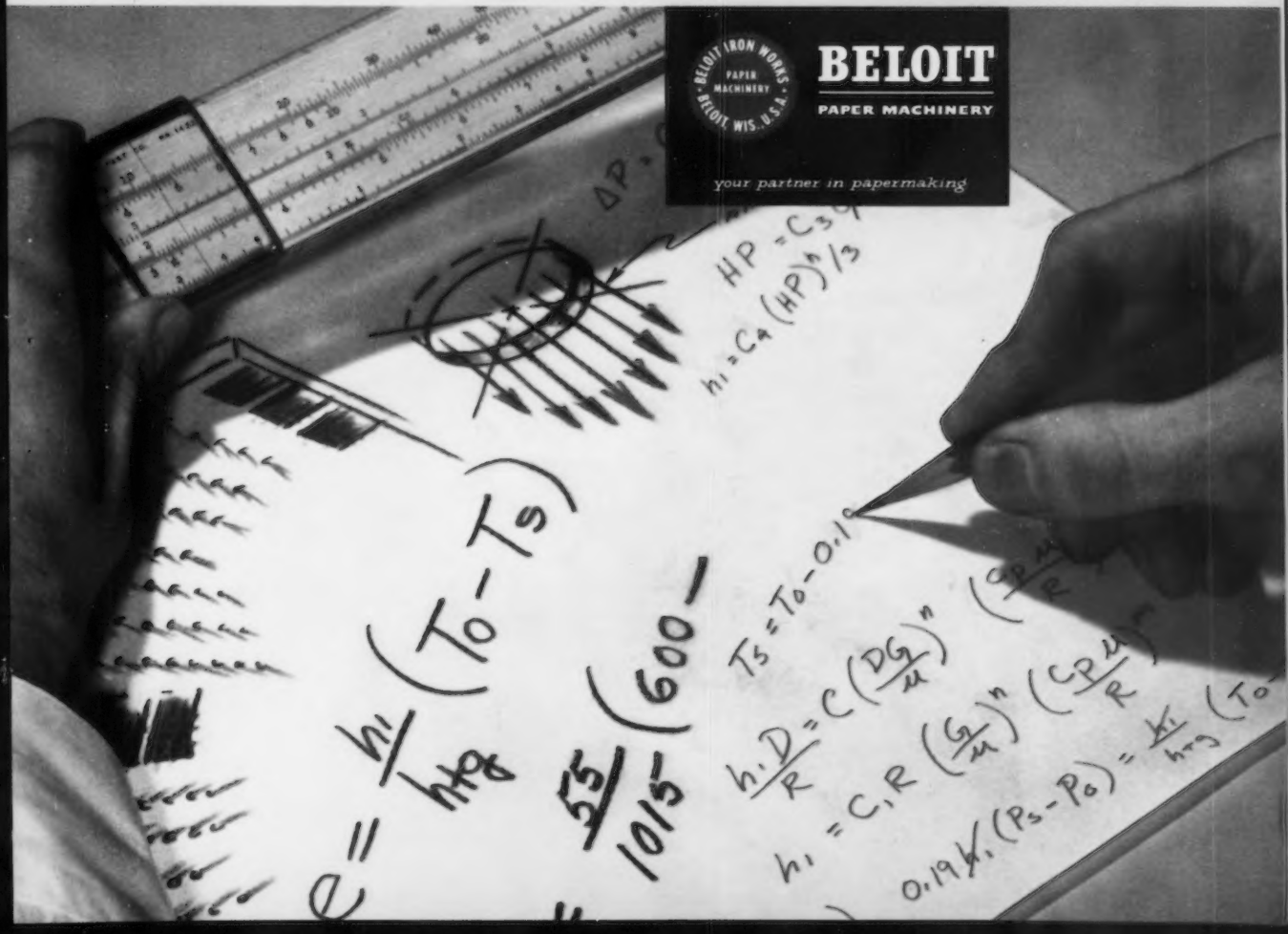
Beloit Research

dedicated to paper progress

solution to high-velocity air drying

Development of the Beloit Air Cap has coupled the maximum in high-velocity air-drying efficiency with practical papermaking considerations. Advantages include adequate clearance between the Air Cap and the surface to be dried, and a smooth surface opposing the sheet. In addition, Beloit's perforated plate design is not subject to thermal distortion or mechanical damage. These outstanding features are the direct result of Beloit's continuing research and development program, beamed at achieving faster production, greater precision, ever higher performance standards. Beloit "paperesearch" means paper progress—more efficient machines for you, better paper for your customers.

DRAWING-BOARD PORTRAIT: PREFIGURATION OF THE BELOIT AIR CAP. PHOTOS BY S. R. CHRISTENSEN



Beloit machines
hold
speed and production
records on tissue,
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News of Converters

(Continued from page 16)

Guerrant Succeeds Scott At Virginia Paper

J. G. Guerrant, first vice president of Virginia Paper Co. for eight years, has been elected president, succeeding William C. Scott.

Mr. Scott, who has been with the company 45 years, is retiring. He has been president since 1952. His successor has been with Virginia Paper more than 25 years.

Kellogg Envelope Announces Promotions

Edward A. Flaherty has been appointed assistant manager in charge of factory operations at the Kellogg Envelope and Kellogg Container Divisions.

This is a new position made necessary by the growth and increased productive activity at the two Kellogg divisions, the company said.

Mr. Flaherty has been manager of the paper cup division of the company in Worcester.

Donald H. Dodd becomes the manager of the paper cup division. Walter T. Lindquist becomes assistant manager of Logan division succeeding Mr. Dodd.

American Sisalkraft Advances Paulsen

Philip L. Paulsen has been named assistant manager, San Francisco sales office by American Sisalkraft Corp. Mr. Paulsen has represented the firm in several West Coast territories for the past seven years. In his new position, he will assist R. S. Youngberg, Western Division sales manager.

Fibreboard Paper Products Forms New Division

Formation of a completely new manufacturing and merchandising unit, the Tube and Can Division, has been announced by Fibreboard Paper Products Corp. William H. Ecker was named general manager of the unit by Jack H. Grady, vice president and general manager, Packaging Group.

"The Tube and Can Division has been established as a separate packaging division to provide greater emphasis for Fibreboard leadership in this important packaging field," Mr. Grady said.

Mr. Ecker joined Fibreboard in 1949. He progressed through positions of district credit manager, assistant to the vice president and director of sales; assistant merchandising manager, Tube and Can, and most recently, merchandising manager, Tube and Can.

The offices of the new division will be located at 1789 Montgomery St., San Francisco 11, Calif.

Package Products Names Market Development Mgr.

John A. West of Dayton, Ohio, has joined Package Products, Inc., as market development manager. He joins the firm after having been industrial sales manager for Monarch Marking Co.

Package Products specializes in designing, printing and converting paper, film and foil.

Shawmut Waxed Paper Under New Management

Major management changes for Shawmut Waxed Paper, 52-year-old concern, have just been announced by new directors.

New officers of Shawmut Waxed Paper are: Lawrence A. Graham, president and treasurer; D. Tom Kerns, assistant treasurer; John O'Shea, New England representative. New directors of the corporation are: Lawrence A. Graham, D. Tom Kerns, John O'Shea, Mrs. Cora Moore, Charles Pingree, Howard Nichols and Thomas Ayres.

Immediate plans call for a market survey on product use and sales potential of the present line for conversion to high speed production on those products in greatest demand. Several new products are now in the planning stage.

Multiwall Cement Bags of Extensible Paper Withstand Repeated Drops

A year-long series of rigidly controlled breakage tests on commercial-run multiwall cement bags has shown that bags made of Clupak "stretchable" paper withstand up to six times the punishment of regular kraft multiwalls of considerably heavier basis weight, according to a laboratory report just made public by Clupak, Inc.

Designed to give the cement and allied industries a precise indication how multiwalls filled with cement and mortar stand up under rough handling, the tests were conducted with bags made out of standard commercial runs of paper. Both the Clupak extensible paper (first introduced in 1958, and now widely used in all forms of multiwalls) and the regular kraft were manufactured on the identical paper machine, using pulp produced in the Southern United States.

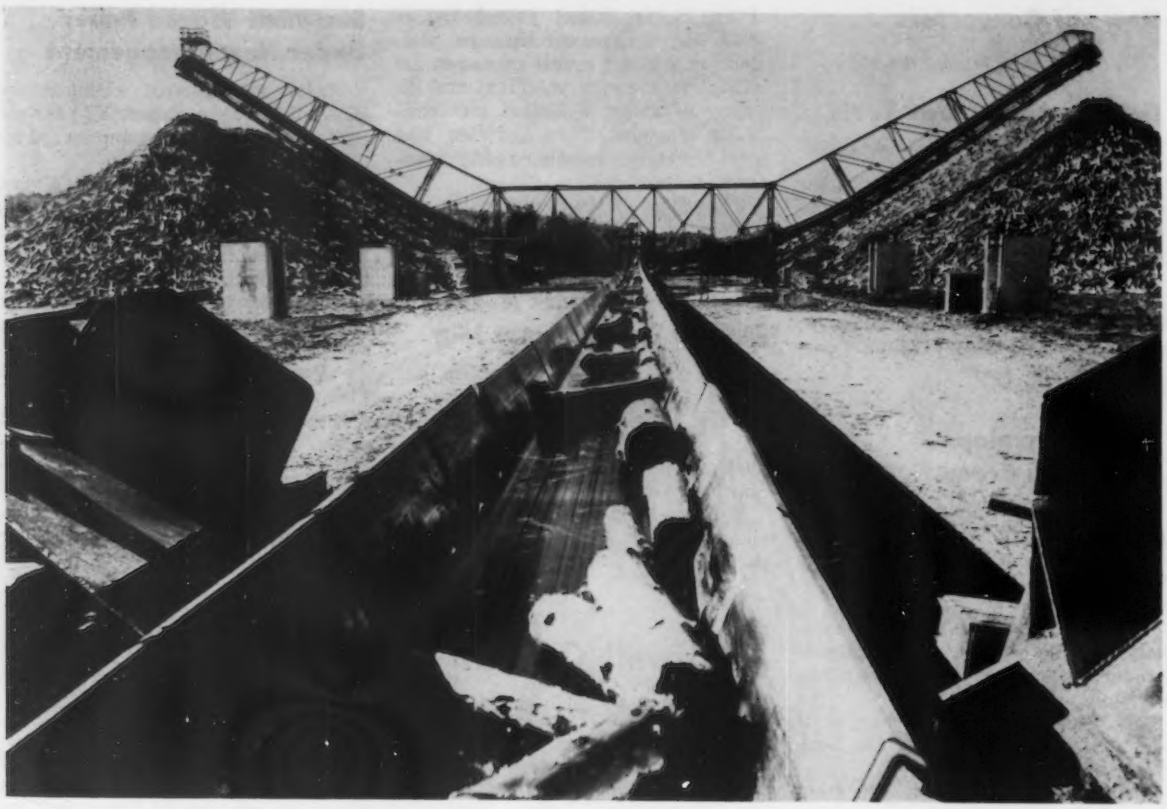
CLUPAK BAG BEST PERFORMER

The tests—repeated flat drops from a height of four feet, until the bags broke—were under standard laboratory conditions of 73° F. and 50 per cent humidity. The best performance was that of three-ply Clupak bags with total basis weight of 150 pounds each (containing 94 pounds of cement) which averaged 18.2 drops to failure. Against this, four-ply regular kraft bags with higher basis weights of 170 and 180 averaged 3 and 3.8 drops to failure, respectively.

The Clupak multiwalls were of three-ply (in one case, two-ply) construction, the regular kraft bags, four-ply. In every case also, the total basis weight of the paper used in the Clupak bag was less than in the regular kraft bags. Because considerably less paper is used, the Clupak bags are available commercially at prices generally the same as, or lower than, regular kraft multiwalls, it was stated.

Complete results of the tests (which were conducted over a full year at the mill of one of Clupak, Inc.'s nine U.S. licensees) follow:

Content	Construction			Total Basis Weight	Average Number of Drops to Failure
70 lb. Mortar	2/40	1/50	Clupak	130	6.5
70 lb. Mortar	4/40		Regular	160	3.0
70 lb. Mortar	1/60	1/70	Clupak	130	6.4
70 lb. Mortar	4/40		Regular	160	3.0
94 lb. Cement	1/40	2/50	Clupak	140	9.2
94 lb. Cement	3/40	1/50	Regular	170	3.0
94 lb. Cement	3/50		Clupak	150	18.2
94 lb. Cement	2/40	2/50	Regular	180	3.8



Considerations For The Use of Belt Conveyors in The Woodyard

Belt conveyors carrying pulpwood require less h.p. and less maintenance, says the author. Below, he discusses factors that recommend the use of such conveyors in the woodyard.

J. M. Shepard,
Chief Engineer,
Houston Plant, Link-Belt Co.

In recent years there has been a strong general trend toward the use of belt conveyors for handling pulpwood logs through various handling operations in the woodyard. Their use for handling pulpwood logs probably has had its greatest development in the eastern and central regions of Canada.

A belt conveyor carrying logs using normal anti-friction roller bearing idlers will require much less horsepower than the chain drag type conveyor. By the same token, under favorable operating conditions, maintenance of the belt conveyor can be considerably lower than a drag type conveyor. In the South, the flume has been used in some cases in place of chain conveyors, but there also the belt conveyor is receiving more and more serious consideration where particularly long-centers woodyard conveyors are required.

It has been reported the first Canadian application of a belt conveyor was the use of a wide belt as a sorting table in front of a set of barking drums. This proved so satisfactory other applications followed it. Such a belt is usually 54 or 60 inches wide and operates at a speed of 70 to 75 feet per minute. The actual

sorting of logs is improved since logs slide very easily on the flat wet rubber belt.

Selecting Belts

Rubber belts for such conveyors are 5, 6 or 7 ply (6 or 7 ply being more commonly used) of 36, 42 or 48 oz. duck (depending on maximum size of logs) to give ample body to the belt. A 42 oz. 6-ply belt has about the same body stiffness as a 7 ply, 36 oz. belt and costs less.

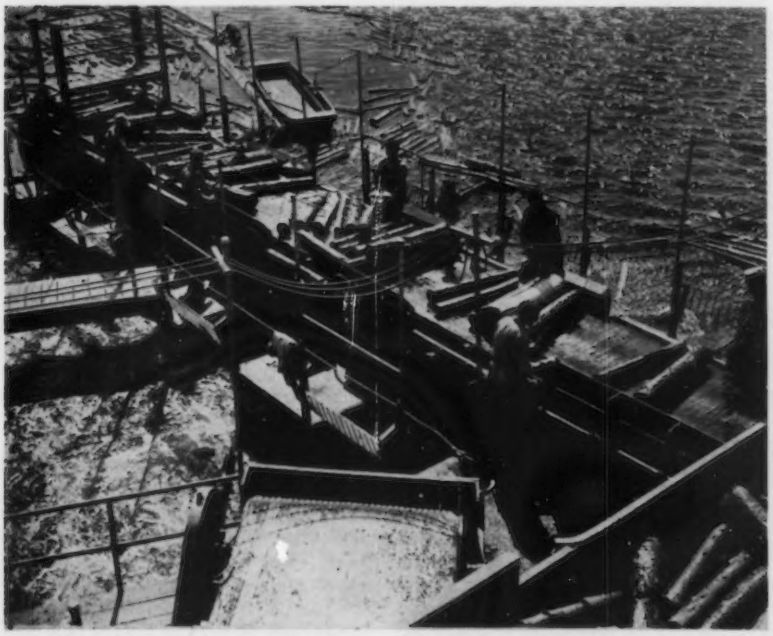
Rubber covers are ¼ to ⅜ inches thick with breaker strip and 1/16-inch cover on the back side. The heavy cover on the carrying side is to prevent pics from piercing through to the carcass, allowing water to get into it. Pics are sharp, pointed tools used for pulling rejected logs from the belt, and can inflict considerable costly damage to the belt if improperly handled. The ⅜-inch rubber cover is good additional protection against belt damage. Some operators want the heavy cover on both sides so as to be able to reverse the belt. For conveying purposes (as distinguished from sorting) the belt carcass should be at least 32 oz. duck of 6 or 7 ply with 3/16 to ¼ inches top cover with a breaker strip and a 1/16-inch bottom cover.

The method of feeding logs to a belt conveyor has a strong bearing on the belt width, as also does the length of the wood. For a capacity of 100 cords per hour and wood averaging seven inches in diameter, a definite number of sticks must be handled. Very often, however, the feed is not uniform so the belt must be selected wide enough to accommodate surges. On a belt conveyor which is simply to transport logs from one point to another, a 36 inch wide belt operating at speed of 300 feet per minute would easily handle 100 cords per hour.

Heavy rubber covers, ¼ to ⅜ inches thick, are used in the belt's carrying side to prevent pics or other sharp-pointed tools from piercing through to the carcass, allowing water to get into it.

Never use a 48-inch wide belt for a four-foot long wood as it would be too close to the four-foot length and result in these logs getting crosswise of the belt and wedging between skirt plates. Likewise, maximum belt width for five-foot wood should be 48 inches.

The use of wide belts to feed barking drums may well be questioned except under fairly ideal operating conditions such as medium uniform logs with even feed and distribution on the belt. It is a considerable distance to drag logs over a 60- or 72-inch wide belt, especially if logs are piled on the belt and jamming occurs. In such cases, the belt will continue to drag under the logs with more less destructive effect on the belt cover. On the other hand, a feeder using multiple strands of plain chains will continuously slide under such jams with but little wear and tear and no danger of serious damage.



A sorting belt, as distinguished from a conveying belt, is usually 54 to 60 inches wide and is operated at a speed of 70 to 75 feet per minute.

Spacing of Idlers

Standard 6-inch diameter flat roll idlers on 1¼-inch shafts are used for belts up to 42 inches wide, spaced at 3-foot, 6-inch intervals for four foot wood and 4-foot, 6-inch intervals for five foot wood. The smaller in-

Wood may be conveyed up an inclined belt, provided there is a long radius of upturn not exceeding 10 degrees, and the belt is kept dry.

terval is just a little less than the length of the stick. This spacing of idlers has been determined by experience and is generally accepted practice by the industry. Handling regularly shaped sticks, experience has developed that an idler spacing of less than the length of the wood will restrict belt sag between idlers so that logs will stay put on the belt, thus resulting in less wear on the rubber covers. Excessive sag of the belt between idlers causes logs to roll and shift on the belt.

An unusual situation was reported by one mill where a 30-inch wide belt was installed for handling pulpwood logs that were all hardwood sticks, quite irregular in shape and having many knots and short stubs on their surfaces. These irregularities caused considerable movement and impact of the wood as it passed over each idler, resulting in broken end brackets and the setting up of a harmonic vibration in the structure. By removing alternate idlers to make longer spacings, the operation of the conveyor was improved. This exceptional case points up the fact that the design of belt conveyors for handling pulpwood logs is more an art than an exact science.

How Fast To Run Belt

Belt speeds of 300 to 400 feet per minute for conveyors handling logs is accepted practice. At these speeds the load is more evenly distributed than at slower speeds and there is not too much difference between the speed of the belt and that of the logs striking the belt at the loading point from a reasonably well designed side feed chute. The higher speeds further tend to relieve surges at the loading point. With slow speed belts and the use of plows for discharging from the belt there is a tendency for the wood to wedge at the plows, but with higher speeds and more evenly distributed loads, the logs start rolling off the belt as soon as they hit the plow. Plows should be made of heavy steel lined timbers or of steel pipe and should be long enough to present an angle of 30 to 45 degrees to the oncoming wood, the flatter the slope the better. Four-inch diameter pipe is used for plows in numerous installations. Some eight-inch diameter pipe is reported in use but this diameter would seem to invite wedging of small wood underneath the pipe.

Skirt Boards

The question of skirt boards for a belt conveyor handling pulpwood logs is a matter on which operators have developed various preferences. Continuous skirt boards, 9 to 12 inches in height, are in general use.

Skirt boards should project below the idler, be cut out for each idler and be two inches wider apart than the width of the belt, inclined in the vertical plane so as to be slightly wider between skirts at the top than at the bottom. If everything were in perfect alignment this would leave 1 inch clear on each side of the belt. In actual practice, however, there is a weave in the belt as well as in the supporting structure. In no case should there be an opening between the edge of the belt and the inside of the skirt board large enough to permit a small log or even a slab to wedge and cause trouble.

Point of Feed

A most important factor in the design of a belt conveyor for handling logs is the point of feed to the conveyor. The landing chute to a belt conveyor should be so designed that the speed of the logs striking the belt is as near the belt speed as possible; higher belt speeds (300 to 400 feet per minute) are, therefore, an advantage. Logs should be delivered from the side of the belt, with the bottom of the loading chute sloped in such a way that logs will roll sideways on the belt with about 6 to 8 inches drop and as nearly parallel as possible to the travel of the belt.

For a stationary side feed chute, idlers should be omitted and the belt allowed to sag where logs strike the belt, just as at the barking drum discharge. A water spray at this point (when freezing conditions do not prevent) will improve the loading conditions. A feeder is desirable for delivering logs to a yard belt conveyor from the crane and grapple reclaiming logs from yard storage

piles. It is desirable that the feeder deliver logs to the belt in a constant and uniform stream. One design of a traveling feeder consists of a heavy, 15-foot square deck built on a 20-degree slope directly over the belt conveyor and onto which the grapple discharges its load. Logs roll down this slope to a 3-strand chain conveyor of approximately 30-foot centers, located parallel to the belt conveyor and high enough to provide for a side feed chute which will discharge to the belt just above the skirt boards.

Inclined Conveyors

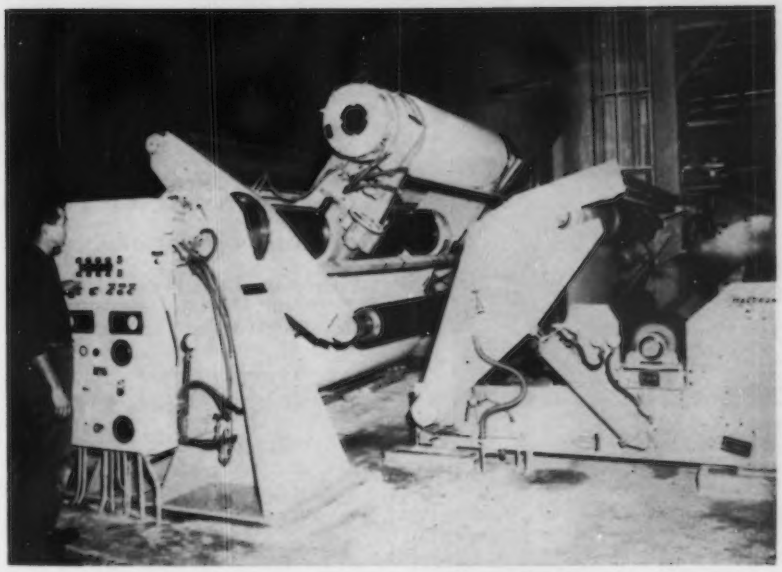
Inclined conveyors with slopes steeper than 10 degrees must use chains with attachments, but when space will permit the design of a long radius upturn and the incline is not in excess of 8 to 10 degrees, a belt conveyor can be successfully used if it is kept dry. The belt should be loaded on a horizontal section.

As an example of what not to do, one belt conveyor was installed on an incline of about 17 degrees, using a 30-inch wide belt operated at a speed of 200 feet per minute. It handled up to 104 cords per hour of barked logs. The installation operated fairly satisfactorily under ideal dry conditions, but at times, when the logs were wet and icy, there was considerable backward sliding with the result that continuous flow of logs was interrupted and wear and tear on the belt became a costly and serious matter. Sound engineering design calls for an optimum incline which will result in efficient operation under severe operating conditions. Experience indicates a maximum incline of 10 degrees handling pulpwood logs on a rubber-covered belt.

In Summary

Woodyard chain conveyors offer the advantage that the trough can be completely filled with logs at certain points and empty in between, while the belt conveyor should be loaded in such a way that it carries a single layer of logs spread as nearly evenly as possible over the belt.

As to the most economical belt selection, there are so many variables to be taken into account that it is practically impossible to lay down any set rules to govern the selection of a belt beyond what has been mentioned above for this type of service. So much depends on the shape, size and condition of the logs and method of feeding, that good judgment and experience must dictate for each local installation.



Automatic unwind and splicer on off-machine coater at Moss Point.

International Paper Installs World's Largest Unwind-Splicer

The International Paper Co. has installed what is believed to be the world's largest unwind and automatic splicer at its mill in Moss Point, Miss. The unwind-splicer, supplied by the Waldron-Hartig Division of the Midland-Ross Corp., New Brunswick, N. J., feeds paper up to 152 inches wide to off-machine coating equipment. It is built to handle rolls measuring up to five feet in diameter. It is designed for future operation at 2000 feet per minute and is presently run at speeds up to 1000 feet per minute. The unit is operated by one man who controls unwinder and splicer operations from a push-button control panel.

The accompanying photo shows the operator in readiness to make a splice. As an old roll runs out, he pushes a button which moves the air-operted splicer-arm into splicing position. He then pushes a second button which rotates the arms of the unwind so that the old roll is moved out of normal running position and the new roll is moved into running position.

A third button causes a friction wheel on the splicer to rotate against the new roll of paper, bringing it up to web speed. A fourth button then activates an electric eye which detects a previously applied black spot on the new roll. Upon detecting this spot, the eye causes a pneumatically-controlled splice roll over which the old web is traveling, to be brought up so that the old web contacts the new roll. The leading edge of the new roll has been previously prepared with an adhesive so that it will stick to the old web as the two make contact. As the new roll begins to unwind, the electric eye sees the spot a second time and this time operates both a knife which cuts off the old web, and a brake which brings the old roll to a stop.

Paper now unwinds from the new roll, the splicer-arm is retracted into normal operating position, the core of the old roll is removed, and a new roll is mounted in its place in readiness for the next splicing operation.

The coating line fed by the Waldron unwind-splicer is the largest off-machine coater yet built. It includes, in addition to the unwind-splicer, four coaters, an oven, and a high velocity drying system. The oven and high velocity equipment were supplied by J. O. Ross Engineering. Two coaters are located at each end of the oven and numerous threading arrangements are possible, the choice depending on the type of coating applied and whether one or both sides of the sheet are to be coated. One coater at each end of the oven is a Waldron air knife or "Microjet" type.

The Pursuit of Finishing

The author, a leading authority on the subject of paper finishing operations, presents a broad picture of the problems involved and suggests avenues of approach for the solutions.

Leslie S. Pearson,
Vice President and Manager,
Paper Mill Division,
Southworth Machine Co., Portland, Me.

In general the labor cost is higher and the time element longer for processing orders in sheet mills than in any other department in the paper mill. The remark is often made that finishing produces nothing but cost; that it adds nothing to the product. In other words, it is a necessary evil which has attached itself to the production of paper. I agree with the word necessary, but not with the word evil, and even if it adds nothing to the product, it most surely adds a great deal to the relations between the company and the customer. If this is disputed, try eliminating the finishing operations for a few hours.

Both a Producer and a Customer

Good business dictates that aside from having the ability to process and market a product, it must have control over all its internal economic factors. It dictates that these same controlled economic factors must be segregated before a definite attack may be made for profit improvement. It further dictates that in the end analysis, it is not what the mill thinks it has produced, but what the customer judges it has produced that counts. Don't let's forget that the customer also has customers and that they too are faced with the same basic business principles and problems as are the mills. The better position we are able to afford the customer, the more success we will have in marketing our product. The finishing department, as it falls into these categories, has imposed upon it the two-fold purpose of being both the customer and the mill. This, I am sure, is more fully appreciated by finishing personnel. It is well past the time for this responsibility to be widely recognized.

Paper Trade Journal has decided to do something about the "orphan" or "stepchild" of the industry, as finishing has often been described. In many mills, particularly fine paper mills, finishing costs in terms of labor, paper wastage and plant space are enormous. Every year or two some speaker or author calls for greater attention to this problem but to date little has been accomplished except by the equipment manufacturers, who in some lines have made enormous strides. The extent and cost of finishing operations varies from the mills producing the highest grades of fine paper down to boards. All however have many problems in common.

We propose to provide our readers with as much information as possible on all aspects of finishing. We are planning articles by experts in the equipment, mill and consulting fields. We are contemplating surveys and questionnaires. A panel of experts to answer our readers inquiries on finishing is under consideration.

Success of this project depends on the reaction of our readers. May we have: your comments on the articles; suggestions for subjects to be covered in future articles; and possible questions to submit to our proposed panel?

The manufacture and marketing of paper is a gigantic distribution project. The variety of processes into which paper has to be diverted in order to arrive in one form or another in the hands of some 165,000,000 people means that it has to leave the mills in many varied forms, all having an importance in this huge distribution scheme and all forms having an individual place in it.

In order to meet this distribution program, sheet paper has to be converted from its mass produced bulk form into its required distribution form which in essence is a desired suitable merchandizing form to answer the dictates of the many types of markets and to enable these markets to acquire and best dispose of the product for a profit. The distribution program also requires that the product going through it be packaged not only in a manner sufficiently adequate to protect it against "bodily damage" in transit and handling, storage and rehandling, but to encompass during all this a means of containing the paper in its manufactured physical characteristics to final consumer end destination. This is quite a chore and undertaking, and the finishing department has this responsibility.

We have established that pursuit is warranted then because of these primary important reasons:

1 The necessity to know internally what has or has not been done.

2 To relate the above in its impact upon the mill's economic structure.

3 To coordinate mill effort with sales, customer and distribution.

Why Pursuit Must Be Started—Now!

The increasing demand for paper, the increasing competition, higher costs and more critical distribution all require more and more from every department.

When we say more and more, what do we usually think in terms of, other than more production, more sales and more profit? And what have we in the finishing departments but **the opportunity for more production, more support for sales and more profit?**

Modern technology has advanced the processes and methods in paper mills to a continually higher degree than ever before in our history. Although the figure naturally keeps changing, approximately $800,000,000 is earmarked for capital expansion and improvements in the paper industry during the next year to year and one half. For the most part, these expenditures will be for such as new and improved pulp facilities, new and improved paper machines, or new and improved power distribution; but not often do we see mention made of new and improved finishing facilities. Yet, the paper in one form or another has to go through finishing or struggle through finishing in varying degrees, and when the process starts to slow down and accumulate an ever higher labor cost, it subjects itself to more handling to the detriment of the condition of the product. It generally enters into a series of processes and methods which have not been improved over the many years in step with other phases of mill process and operations. Yet technology today denies this as being necessary.

Competition and markets plus yearly increases in costs are beginning to push many companies to move towards improved finishing facilities, but not in the proportion they should be. There are still many companies which look superficially into the new existing technologies but quickly defer a move because seemingly there so often arise problems outside of finishing which all of a sudden require preference.

New finishing technologists will gradually assert themselves; they have done so in part during the past twelve months. Where else in a paper mill can so many gains be made for so little; it challenges dispute.

The proper approach and acceptance of new equipment methods and materials as they are available today will make cost reduction and improved service possible for a short term investment and by proper cooperative study and forward planning, sustain these gains and allow the introduction of further improved developments as they become available.

"In the eventual process analysis that should follow, there is still very definitely the problem of associating all a machine's possibilities with respect to a mill's conditions and to just what extent the mill will be able to take advantage of these machine possibilities."

Cutting on Rotaries

The manufacturers of rotary cutters have made fairly steady advances in machine improvements. However, there still are restrictions and variables imposed upon these machines by the nature of the paper to be sheeted, the winding condition of the rolls, the length of orders, the variance in sheet widths and lengths, the texture and basis weights, etc., and heights of finished loads.

It seems that the prevalent requests for new cutters revolve around the following primary production requisites:

1. Eight to ten roll loading on backstand sections.
2. High speeds of 700 f.p.m. and upwards.
3. Cut sheet widths from 18 inches —19 inches to 70 inches plus, and sheet lengths from 20 inches to 85 inches plus.
4. Handle basis weight (25 × 38) from 24 to 210 pounds and upward.

We have the questions, in addition to the above, of simplex or duplex, single or overlapping, anti-curl devices, control of cutter dust, static, expeditious adjustments of speeds and sheeting dimensions, knife life expectancy, good lay-up in the piler, and control of sheets being delivered without damage. Also double backstands for reduction of lost time in loading, quick removal of finished skids either to the right or left, or straight forward from the lay-boy, shafted, shaftless or stub-shaft backstands, and then the counters and markers.

In the eventual process analysis that should follow, there is still very definitely the problem of associating all a machine's possibilities with respect to a mill's conditions and to just what extent the mill will be able to take advantage of these machine possibilities.

To discuss in detail all the processes would require far more space than is now available, but let's take a few of these processes.

Eight to Ten Roll Backstands

We have eight and ten roll section backstands and they are flexible and efficient. They lend themselves to additional flexibility when the backstands are, for example, in line back to back. This affords the opportunity to change the number of rolls being cut either downward or upward by drawing from the back section together with the front section, **BUT** do your orders by size and grade allow you to schedule a sufficient percentage of rolls to warrant the acquisition of such backstands? Many mills can answer in the affirmative; others cannot. It does not depend upon the machine; it depends upon the mill conditions.

Another interesting factor not looked into sufficiently is the ever-existing point of diminishing return which can exist for cutting as in other operations, and in this instance is in relation to backstand loading frequency and frequency of removal of finished loads from lay-boys—again this is a mill level factor. To extend this point of diminishing return will mean an increase in roll diameters and skid piling heights and so we are back to the paper machines, calenders or coating machines.

High Speed Cutters

High speed is a relative thing; it is relative to the weight of paper and length of sheets, regardless of how fast the machine may be constructed to operate. To obtain a cutter having a designed speed of 700 f.p.m. can only be a disappointment and a disillusionment if it is found that all your orders cannot be cut satisfactorily at near this forecast speed, despite the fact that roll condition is at a standard quality level. I believe that too much stress is placed on the speed factor as to speed alone, and that the various samples of paper to be cut through a specific machine are neglected. In order to

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reach a more realistic norm, the type of production should be examined physically by both manufacturer of equipment and the mill. When there is a great variance of weights, texture and lengths, then the process of relative grouping should be followed before any forecasting is attempted.

Continuous Delivery

Continuous delivery is now an established fact, continuous, that is, as to the lay-boy. The extending grid fingers are for certain types of paper, and the double lay-boy for universal grades. The secondary lay-boy of the dual system is at a mid-point of the delivery, but has a separate tape system from the conventional primary end lay-boy. A further use for the dual lay-boy is discussed in a later section of this article on "Statistical Sampling."

The point under discussion now concerns the cutter application of continuous lay-boys. How do we want the paper discharged? Do we want it in skid loads? Or in trimmer knife loads?

Before we can satisfactorily answer these questions, we have to associate the discharge with how we are next going to handle the paper.

In the event that we are going to sort the paper and then trim it before packing, we will need a batch lot or conveyor line, and so we will be involved with a necessary accumulation between cutting and sorting, and sorting and trimming operations. We will have a further accumulation problem to meet in the event of such as 8½ inches × 11 inches packaging and large sheet wrapping as against skid and carton bulk packaging. The problem of accumulation is dealt with in this section, as it is directly related to cutter continuous discharge.

Problems of Area Accumulations

The continuous delivery of paper to pre-sorting in trimmer press knife lifts, most generally imposes increased problems on time cycles of operations and on area accumulation. The reasons for this may be due to varying quality conditions of the paper which will increase or decrease sorting time, larger or small sized sheets, which will also affect sorting time, varying weight of sheets, varying cutter speeds and the number of rolls on the backstand in process of cutting will also vary. Balancing must be done through the accumulation area and by scheduling a cross flow of paper if an economic operation and stability of crews is to be maintained.

The continuous delivery of paper to pre-sorting on full skids imposes fewer problems of accumulation and balancing time cycles, because the disposition of paper to the sorting stations is in larger unit quantities requiring less area accumulation. This permits the sorters to work continuously for longer periods of uninterrupted time on each set-up of paper at the sorting station. The variables imposed upon the cutter operation do not so critically impose themselves upon pre-sorting because the variables are not so closely related in elapsed time upon the sorters.

In the event that the paper bypasses sorting and goes directly to trimming, time elements will again enter into the time cycles. Specifically, let's take the instance of a cutter operating at a certain hourly productive rate and a trimmer receiving its paper in knife lift quantities in a continuous flow. Let's suppose that the trimmer starts trimming its output one out of one, and the out-put of both machines is identical. Then we have the orders changing the trimming to a slower rate of two out of one, and next still slower four out of one—it won't be long before we start a surge in the accumulation area. Or suppose the cutter production is reduced, for any number of reasons previously indicated, which causes a reduction and a possible run-out of paper in the accumulation area. The trimmer still needs to trim but can't obtain its paper fast enough.

I feel quite sure that the obstacles mentioned above, which are just a few, can be overcome by scheduling and by being able to interchange flow lines of paper, etc., but why? The object is to simplify and streamline, not add confusion to intricacies.

Lastly then, before having to leave the cutter subject, let me emphasize that the continuous lay-boy in one form or the other is here, but it is a mill problem of evaluation for adaptation—that is the proper adaptation. It has an important place in regimenting a change in the scheme of finishing as we will see later in quality control.

Quality Control and Statistical Sampling

This subject has a more important effect on finishing costs than any other subject matter I can think of. We would not think of introducing inconsistent pulp onto the paper machines. We have advanced far with instrumentation and refiners, with slime control, and with the development of improved chemicals, yet we start off by sending to the finishing department rolls of paper and in essence saying—here it is boys, "attack it," and if the customer has trouble with it, don't come back to us, because you should not have shipped it in the first place.

I don't believe there is any unsolved mystery about quality control or statistical sampling. I do believe that it is a most important program and is fundamental in manufacturing. We all agree, I am sure, that an organized program, independent from production, is a necessity also in the most efficient performance. However, let's get down to the subject matter as to finishing.

First, we have the situation to meet as to condition of rolls coming into the finishing department. I know it to be true, as do others, that the condition of the paper coming from the paper machines, or the calenders, or the conversion coating machines, can be determined in its roll form so long as the condition certification is not too pin-pointed.

"But do your orders by size and grade allow you to schedule a sufficient percentage of rolls to warrant the acquisition of such backstands?"

"How do we want the paper discharged? Do we want it in skid loads? Or in trimmer knife loads? Before we can satisfactorily answer these questions, we have to associate the discharge with how we are next going to handle the paper."

Roll Certifications

We know that each operation after the paper machines, and before finishing, may add or subtract something on the quality picture. We know that characteristically, and excluding market conditions, some of our grades have a better quality performance through the mill than others, and appear to stabilize. I have written about this roll certification before and do not wish to take space again, except to reiterate that we can and should proceed to determine and indicate in which of three classes the rolls coming into finishing are:

One—The Good Ones
Two—The Doubtful Ones
Three—The "Misery" Ones

And let me add that it costs time or investment in approach, preanalysis and regimented effort rather than equipment at this stage. You will remember that I cited condition of rolls as a factor affecting cutter production. All of this foregoing is a forerunner for better finishing and reduced costs as will be seen in the following sampling methods open to us.

Sampling is fine, it is logical, it can be an expanded attribute towards better finishing; but it can be a negative result when you constantly sample and constantly sort a higher percentage of paper than you need to, because all the good, doubtful, and misery rolls have been cut together and the faults so scattered throughout the paper that you have to sort it all to get a little out because sampling says we dare not do otherwise.

Sampling at Double Lay-boy

The double lay-boy does, in my opinion, afford an excellent opportunity for sampling in varying degrees as warranted by grades and certified roll condition. Whether the double lay-boy is used where the secondary is a modified sampling box, or as a full piler the same as the end primary, it is possible to continuously operate, switching the paper by pushbutton from one lay-boy to the other, inspecting periodically each sheet in say 250 sheets from every 3000. The result of this sampling will determine whether or not the finished skids may go direct to trim or must be sorted. The frequency of sampling will primarily vary by the established history of the grades and by the classification of the rolls being cut. This method allows a good cross section sampling of each skid of paper without unnecessary rehandling and allows each load to be properly prepared for the next ensuing operation of trimming, and it follows the precept that all in-process material should be in proper form before introduction to a production machine.

There is a tendency to sample paper at the trimmer press operation, but except as a furtherance of tests of the regular line inspection functions and efficiencies, I believe that the trimmer press is too late in the sequence and the attempt therefore is in the wrong place.

Mechanical Inspection

Much has been done and much more still has to be done in the use of electronics for sheet inspection. There appear to be several approaches developing. These are inspection by "mechanical" scanning, by "mechanical" feel, and by a combination of both.

The history so far is that the equipment performs at a certain level of satisfaction. Each roll added to the cutter backstand, in cutting simultaneously, will add to the cost and to the complexities, because each roll has to be "mechanically" observed before they merge as one in the cutter itself. There is also a problem when cutting multiple rolls. Where a defective sheet in a multiple will be detected, and its signal transmitted through the memory circuit to the reject mechanism, the defective sheet will take multiple companions with it into the reject piler. This reject piler is the secondary lay-boy of a double lay-boy system.

Control over discrimination of the electronic circuitry is not the problem today that it was twelve months ago. The machines cannot, however, change their own minds.

To enter into any consideration of electronic inspection, the mill must make a complete analysis and take a new look at its defects or its present quality standards. It has to follow through all the steps necessary for previously mentioned roll certification. I believe that this essential study as I have found out from experience can, and probably will be very refreshing and very rewarding.

It is my opinion that when "mechanical sorting" is to be done on the cutter, the more knowledge gained through the process of roll certification to classify the condition of rolls entering finishing, the easier will it become to apply "mechanical sorting", and the more satisfaction realized from it.

In closing this section, I should add that one of the most interesting questions that has been asked of me has been—How can mill "A" plan to manufacture and ship, with virtually no sorting at all, the same grades as mill "B" who is sorting everything? I run across this repeatedly, especially with new mills and mills starting up new product lines. I have only one answer—it is not price and market, it is need to take that new all-over look that has become befogged over the years. That new look has been set forth as prerequisites for better and cheaper finishing and for roll certification and for mechanical inspection.

Manual Sorting

The most prevalent method of sorting is very largely the count and fan method. Single sheet sorting is usually found on higher priced specialty papers and on the conversion coated grades. The count and fan method is, of course, supplemented by single sheet sorting when the quality picture becomes such that the fanning is no longer safe for the customer. At this juncture we acknowledge only a temporary situation.

"It is a most unusual case where modern equipment by the use of straddle tables, air-flotation tables, etc., have failed to pay for themselves in less than one year, and in some instances a matter of several months."

"How can mill 'A' plan to manufacture and ship, with virtually no sorting at all, the same grades as mill 'B' who is sorting everything?"

I have placed much emphasis on the preparation of quality information before entering finishing. This has to have an effect on extent of sorting.

COUNT AND FAN

Basically this is nothing more than a sampling method. Intensive studies will reveal how little of a sheet an operator is able to see, and when we are forced by quality to supplement it with single sheet sorting, and this sorting goes beyond a certain percentage, the profit margin is reduced because the grade was not priced for that level of performance.

I have seen, and I am sure that many of you have also, how one defective roll when sheeted in a skid will make it necessary to go through a full skid, turning over every three sheets and removing the fourth. The question that we have asked ourselves many times must have been—For goodness sakes, why did we put that roll in with the others?

The trend is very surely away from a four side fan, and to a two side fan, alternating one side and one end. A further trend is to use both methods in various mills on various grades, but to do it on only a percentage of the skid loads or "lifts", depending upon material handling method used.

Equipment is available, and improved equipment is in development, to facilitate the count and fan method and handling of paper, regardless of the above methods used. Paper may be fully fanned or sample fanned and moved from one position to another without turning or folding or lifting, and without the use of auxiliary service labor. The concept is that the less we handle our paper and the more we keep it flat, the greater will be our yield, and the better will be the performance.

Satisfactory counters are available for cutters, and the separate Vacuumatic counter is also available for stack counting. Traveling across the country in and out of over 100 paper mills, one gets definite impressions. Equipment that is extremely satisfactory in one mill is not so in another. On behalf of most equipment manufacturers, it is fair to state that the right equipment selection was not made in the first place, or that too much was expected or imposed without sufficient thought of the limitations involved.

SINGLE SHEET SORTING

I don't believe there is much that I can say on the subject of single sheet sorting. This is still a large part of the sorting in our industry. Single sheet sorting costs can very definitely be reduced by increased production per sorter hour, and yield can be increased by better handling when the proper handling equipment is introduced. Since this type of paper is a higher priced product, so is the cost of the rejected paper. Good handling of the reject piles can aid in a re-sorting of the reject paper on a smaller size sheet basis, thus affording at little added cost a recovery and increase in yield of first grade paper in standard sizes.

Manual handling of this type of paper introduces a tendency for cracking and denting to a point which if eliminated will go a long way towards buying equipment. As in so many of our problems, however, unless an investment in time and effort is first made of sufficient proportions, the potential benefits will remain obscure.

The Trimming Operation

The equipment for charging a trimmer press and for transfer of the trimmed paper onto skids, or into cartons, or into the intemediate stage of wrapping reams or part reams, has been for some time an accomplished fact. The cost reduction ensuing from the use of such equipment is just as much an accomplished fact. No longer is mill air a problem, nor is the grade or size and weight of paper a problem.

Versatility in arranging equipment to meet varying packaging conditions or space limitations has been the keynote in development programs, and when equipment men with paper experience sit down with paper mill personnel to calmly and coldly analyze mill conditions and requirements, then a better understanding of what can be accomplished and how it can be accomplished will result. Many installations analyzed in this way are now in effective use. It is a most unusual case where modern equipment by the use of straddle tables, air-flotation tables, etc., has failed to pay for itself in less than one year, and in some instances a matter of several months.

Cost reductions of 60 per cent or more have been recorded within several weeks of installation, and handling paper from 24 lb. bible to heavy coated food board on the same identical piece of equipment is a fact. Reductions in labor of from five men to two men without production loss, or increases in production of 150 per cent in other instances, are now a reality.

Auxiliary trimmer equipment consists of component parts which may be applied to a system as separate units or as combinations, or added to as later developments warrant, until the gradual acquisition of a number of components results in a complete and integrated system.

I believe that perhaps one of the most upsetting initial aspects of this picture is the submitting of production figures, which are left unrelated as to conditions of deviation, and cause inflationary expectations, or pessimism. I cite the fact that a 10,000 pound per hour production figure may be no more efficient than another mill's production figure of 5000 pounds. Let's not take more space on the subject.

Trimmer press handling systems have been developed to provide better uninterrupted flow to and from the trimmer operator. These systems do not trim the paper. Therefore, the out-put of a trimmer press is still greatly dependent upon the human element. The equipment was developed to simplify the job and to reduce to a minimum the former inherent lost time, and to provide better handling of the paper.

"I cite the fact that a 10,000 pounds per hour production figure may be no more efficient than another mill's production figure of 5,000 pounds."

"I believe the most important step taken, which very definitely reduced our damage tremendously, was the establishing of a plan whereby our car bracing was engineered and prefabricated as would be any piece of equipment."

We are back again to the mill level, just as we have been at the cutters, and every ensuing step. This problem requires analysis and joint research. It requires the courage of changes, and this is minimized by thorough study and exploration and measurement. The most that is required again is an investment in time and joint effort. There is no such thing as a "twilight zone" in your operational analysis or future program.

"I do believe that more advancement in finishing cost reduction can be made, and at a faster rate, if more study and analysis and joint cooperation on an industrial engineering approach is made and carried all the way home to mill people."

Packaging

We must acknowledge on packaging that we have definite market and distribution requirements. We have a responsibility to deliver paper to the end consumer free from transit damage, handling damage, and also in a condition suitable for the proper feeding devices of his printing presses.

Skid packaging has changed very little over the many years, but the carton has undergone several changes and still is due for more. Many mills which formerly packed paper in bulk, but lined their cartons with asphalt or wax coated wrappers, have had the moisture barrier built into their cartons by the carton supplier, thus reducing cost and waste. In most instances, asphalt has been the barrier used. Developments during the past two years have made polyethylene a major economically practical product and a trend is seen toward use of "poly" as a barrier.

I believe that all of us have had problems with the larger telescopic cartons, particularly as to rigidity. We have also had to contend with cartons containing about 150 pounds of paper being manhandled and walked on their ends along sidewalks and all kinds of floors. Usually the cartons would buckle and/or the gummed tape would break.

The recently introduced adhesive carton which has been in development for several years, passing from one stage to another, has overcome the rigidity and walking problems. It has left the package unscarred as to the various forms of printing, and by the use of high shear low tensile adhesive has made it possible to open and close and re-use. In addition to this betterment in packaging, the advancement has opened up definite cost reductions.

A further trend has been to produce cartons having printed tops and bottoms of a pattern identifying the packages to the producing mill.

The carton suppliers are able to contribute much in the way of better packaging solutions and their resources should be drawn upon. I might mention one important such joint action which came about when eliminating separate liners some years ago and acquiring a full content carton. This involved the protection of "bare paper" against the insignia of the corrugating medium especially when cartons were tiered. The satisfactory answer was the construction of cartons having unbalanced liners i.e. heavier on the inside walls and lighter on the outside.

Car Loading and Shipping

Loading and shipping problems become more intensified with mixed cars and stop-over cars than with straight through or limited mixed cars. Our approach to an o er-all change in car-loading and bracing was in joint cooperation with our steel strapping supplier. Various tests were made from time to time and destination arrivals observed and photographed over a period of several weeks on an increasing scale until a final plan was determined. I believe the most important step taken, which very definitely reduced our damage tremendously, was the establishing of a plan whereby our car bracing was engineered and prefabricated as would be any piece of equipment. This went a long way to enforcing conformity to standards, and most important, removed from the shippers the responsibility for doing the best they thought they could by individual ingenuity, meeting every car as a separate problem to be attacked from scratch. The contents of most cars were mixed and would contain skids, cartons, cases and rolls.

We also found that items such as cartons and small rolls were better handled and shipped on inexpensive pallets. We disregarded the fact that the customer could or could not unload pallet loads. Our theory here, and it was most acceptable, was that in the event the customer could not unload pallet loads (not because of pallet construction), he was in no different a position than he would be by unpiling unpalletized cartons. The mill had obtained the benefit of unitized glue locked loads from finishing to cars.

"You're new at cooking rags, aren't you?"

Conformance and Desire

Throughout this article, I have refrained from the exhibition of standards and cost ranges, etc. One reason is space, the other and primary reason is because all such figures are always in need of qualification and clarification to make them related and effective.

I do firmly believe that inflation, which has reduced our dollar since 1900 from 100 to 28.8 cents, can be effectively combatted by proper cost reduction, and where else in most mills can a better opportunity be found than in finishing.

I say this very humbly and respectfully, but I do believe that more advancement in finishing cost reduction can be made, and at a faster rate, if more study and analysis and joint cooperation on an industrial engineering approach is made and carried all the way home to mill people. I believe also that if as humans we will disregard gadgetry and some special individually different way of doing something and conform more to what is a pattern, we will also make more headway. Our problems are generally very similar. We do have differences, true, but not so basically that every mill must resort to special designs and ways of doing things that require a custom treatment throughout and are found nowhere else except that mill.

New "Milo Film" Starches Reduce Cost, Improve Quality of Size and Coatings

Their stable viscosity, reduced setback and clearer, smoother film are derived naturally from the molecular structure of the starch, rather than from expensive chemical modification.

Jack Weaver,
Technical Representative to the Paper Industry,
Corn Products Sales Division

A new series of starches, made from a mixture of red milo and white milo grain rather than from corn, is finding increasing use in paper and board mills for sizing and coating operations. A unique feature of these "Milo Film" starches, recently introduced by Corn Products Sales Division, is that they supply naturally, and therefore at lower material cost, many desirable properties formerly obtained only in the relatively expensive acetylated, ethylene oxide treated or oxidized corn starches.

The Milo Films are made from a mixture of red milo and white milo grains. The milos are relatives of the regular and waxy corns, but are actually varieties of waxy sorghums. They are grown in the western and southwestern states, as they prefer a hot, dry climate not well suited to successful corn production. Thus they provide a crop similar to corn for the farmers of that area. Unlike corn, the milo grain does not grow in ears along the stalk, but develops in clusters at the top of the stalk. It is processed by Corn Products in a plant built in Texas especially for the wet milling of the milos. The wet milling process employed is the same as that used in the manufacture of corn starch.

The new Milo Film starches are characterized by remarkable stability of viscosity during heating and cooling, reduced retrogradation or setback of the cooked paste, superior water holding ability, and a smoother, more continuous film of greater clarity.

Because of these properties, they have already been used successfully to provide an improved printing surface, to reduce the tendency to curling in chipboard, to increase the edgewise rigidity and crush resistance of corrugated board and solid fiberboard, to increase the wax pick tests on uncoated book and offset papers, and as a superior adhesive for clay coatings.

Of course, it should be realized that nature seldom provides the degree of uniformity attained by modern chemical processing. In the case of the chemically modified corn starch derivatives, the chemical treatment employed for crossbonding will control the uniformity more definitely. Variations in basic properties —and therefore in the starch film —can be held within a very narrow range. For this reason, there may be uses and applications where the starch acetates, ethylene oxide treated or oxidized starches will still be preferred despite their higher cost.

PROPERTIES OF MILO-FILM

- —Unusual viscosity stability
- —Lack of retrogradation
- —Increased film solubility
- —Good water holding ability
- —Continuous, smooth, hard film
- —Clear and flexible film
- —Wetting and protective colloid action
- —Compatibility with resins and other film formers

Yet the fact remains that in all the Milo Film applications mentioned above, the resulting physical tests obtained have been equal or superior to those attained with the chemically modified corn starch derivatives, and these results have been obtained at a lower cost.

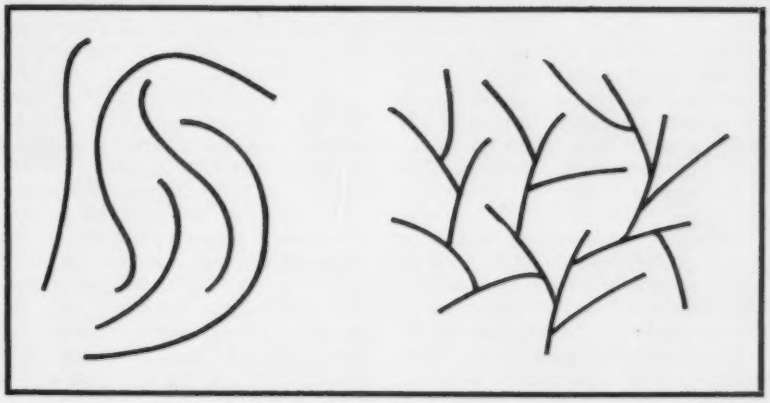
An added advantage, of considerable importance in certain applications, results from the natural purity of the Milo Films. Since they derive their properties naturally, without benefit of chemical treatment, they are suited for use where migrants from wrapping or packaging materials might be considered to be contaminants.

Why Milo Starch is Different

The superior properties stem from the molecular structure of the starch, rather than from chemical modification. Red milo starch is similar to corn starch, except that the granules are a little larger, and it has a slightly higher gelatinization temperature, thus requiring a higher cooking temperature. The red milo has approximately the same proportion of linear molecules (amylose frac-

A field of milo. The milo grains are grown in western and southern states, as they prefer a hot, dry climate not well suited to successful corn growing.

▼ Unlike corn, milo grain grows in clusters at the top of the stalk. Milos are wet milled by Corn Products Co. in a plant built expressly to process them.



◄ Linear and branched fractions of starch molecules. Red milo starch contains about the same proportion of linear and branched fractions as corn starch. White milo starch is composed entirely of the branched fractions giving it many useful properties.

tion) and branched molecules (amylopectin fraction) as corn starch.

The white milo is similar to red milo in granule size, appearance and gelatinization temperature. One important difference, however, is that the white milo contains no amylose (linear) fraction; it is composed entirely of the highly branched tree-like amylopectin. The mixture of the two grains, as used in the Milo Film starch group, contains an amylopectin fraction substantially higher than ordinary corn starch.

It is the linear fraction which is primarily responsible for the phenomenon of retrogradation, reflected in the spontaneous insolubilization or setback of starch pastes. The increase in the branched fraction in the Milo Films is an effective means of preventing the association of adjacent molecules. Thus, cooked pastes of the Milo Films are able to overcome retrogradation effects; they show little or no tendency to precipitate or gel.

Due to the reduced retrogradation, and to improved water holding properties, the increase in the branched fraction also improves the continuity, smoothness and clarity of the film.

Although the amylose or linear fraction, which is considered responsible for the toughness or hardness of the starch film, has been reduced in the Milo Films, any possible loss of toughness or hardness has been overcome by the increased continuity, or cohesiveness, and smoothness of the film.

Paste Preparation Easy

Preparation of the paste is simple and easy. For surface sizing, Milo Film is usually cooked at 20 per cent solids to 200°F. with direct steam and good agitation, and held there for 15 to 20 minutes. It is then diluted to concentrations from 7 per cent to 12 per cent and applied at either the size press or calender stack at temperatures from 130° to 160°F.

The concentration and temperature of application of the Milo Films will vary with the results desired and the type of paper being sized. Increasing the concentration of the starch solution causes an increased size pick-up and an increased mullen and tensile as well as improved surface characteristics. Increasing the application temperature will also increase the amount of penetration into the sheet and will improve internal bonding.

The excellent film-forming characteristics of the Milo Films indicate their use where an improved printing surface is desired. Many board mills using high gloss printing inks must reduce the penetration of these inks into the board to preserve the clarity of the printing. A Milo Film size reduces the permeability of the surface and helps produce a printed impression of uniformly high gloss.

The smooth continuous film of the Milo Film starches has also been useful in combatting the problem of curling. The lack of association of the branched molecules gives a higher degree of dimensional stability to the film. In one practical application, when the white liner on one side of a lightweight chipboard was sized with Milo Film, the inherent curl in

the board and the tendency to further curling because of humidity changes were both minimized.

Calender Sizing

Milo Film has also been used at the calender stack to size the liner for corrugated board, and the paperboard for solid fiberboard containers. The Milo Film increased the edgewise rigidity of the board, and the resistance of the finished container to crushing forces in shipment. In this application the Milo Film was used to replace an ethylene oxide treated starch, and was found to give equal results.

Where Milo Film has been used to replace starch acetates, EO treated starches and oxidized starches as a surface size on uncoated book and offset papers, increased wax pick tests have been obtained. The improved pick can be attributed directly to the excellent film-forming properties of the starch. The hard, smooth, continuous film laid on the sheet protects it from picking with tacky ink and prevents loosening of the surface fibers during moistening of the paper in offset lithography. .

Coating Applications

Comparable results have been obtained where Milo Film has been used as the coating adhesive at the size press. Here again its excellent film-forming characteristics, lack of gelling, and good water holding properties give a coating color of stable viscosity that improves wax pick tests. There is no settling out of the clay in storage tanks, and no sticking on the dryer.

The ability of the Milo Film to hold water is an important advantage in its use as an adhesive for clay coatings. The good water holding properties of this starch keep the liquid portion of the coating and the adhesive from penetrating too deeply into the sheet. The adhesive stays in the coating layer, where it must remain if it is to do its job properly. This explains the higher and more uniform wax pick test.

Milo Films are compatible with many waxes, latices, resin polyvinyl alcohols and other film formers used at the size press or calender stack for special purposes.

Used for Laminating Adhesive

Milo Film has also been used as laminating adhesive for solid fiberboard. This can be a non-waterproof formulation, or can be made waterproof by the addition of a urea formaldehyde resin and polyvinyl alcohol. The resulting adhesive can be applied as a thin, non-penetrating film which gives immediate adhesion and permits the production of dry flat board at high speeds.

Other Uses

Other uses are being explored. The ultimate worth of the Milo Films will be determined in further tests of this starch type on specific papers in individual operations.

Already, however, there is ample evidence that for a number of applications, the paper industry has, in the Milo Films, a series of starches with properties equal or superior to the acetylated, ethylene oxide treated or oxidized starches at a saving in material cost.

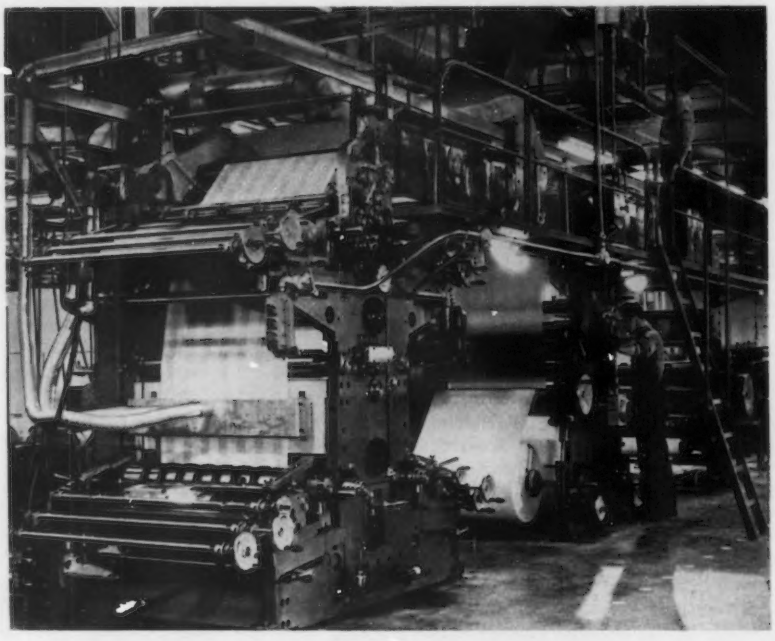
Paterson Pacific Installs High-Speed Printing Press

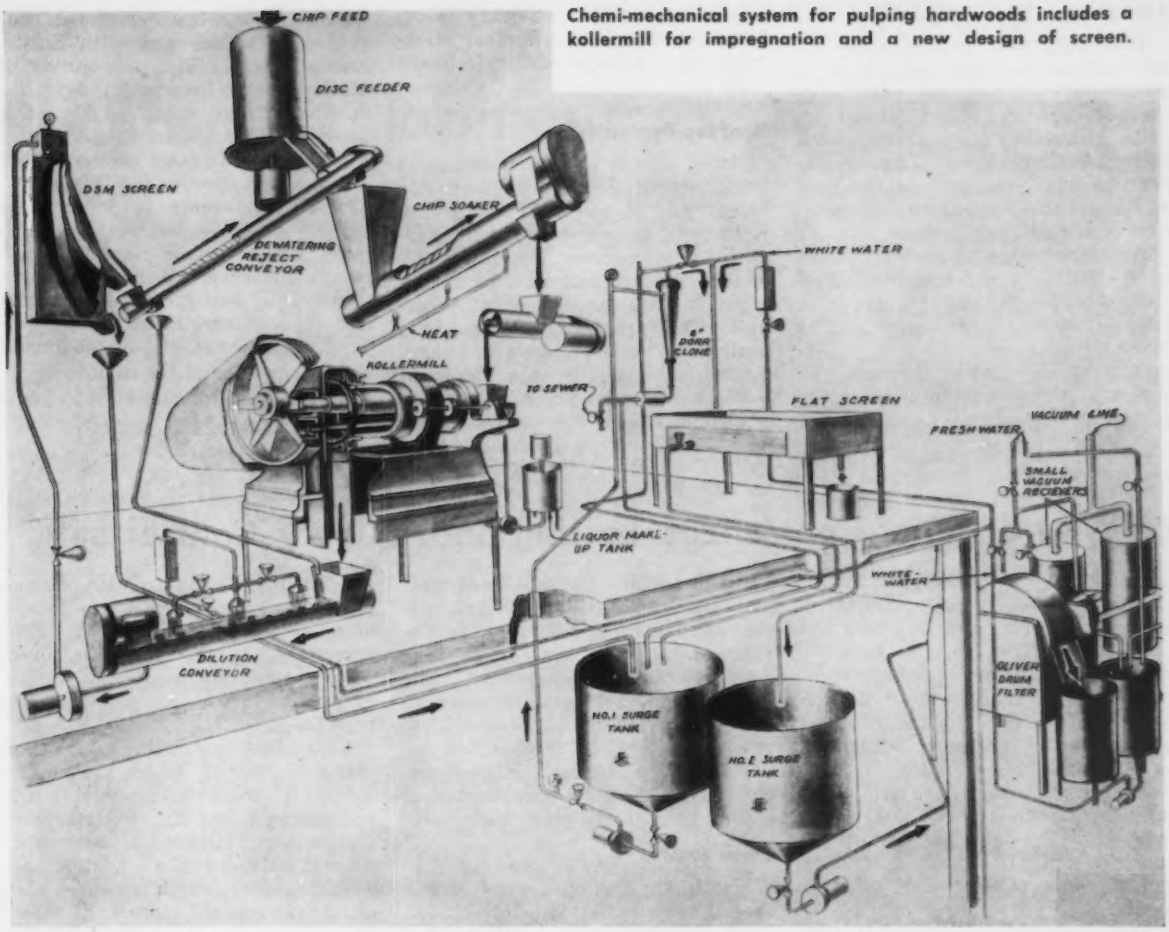
The Paterson Pacific Parchment Co., Sunnyvale, Calif., has announced installation of a new four-color, flexographic printing press. Paterson Pacific is a subsidiary of the Paterson Parchment Paper Co., Bristol, Pa.

Purchased and installed at a cost of $75,000, the high-capacity, high-speed unit was manufactured by the Westfalen, Germany, firm of Windmoller and Holscher. Heinrich Equipment Co., New York, represented the West German firm in the transaction.

Built on a six-color frame, so that two additional colors can be added when desired, the new machine can handle a web of paper up to 42½ inches wide. Its maximum printing repeat range is 36 inches. Minimum range is nine inches, with ¼-inch circular pitch gears. Other features of the machine include positive register control, drying equipment, cooling and reconditioning equipment, and a one-shot lubrication system.

W. J. Gray, president of Paterson Pacific, said the new machine will be used for printing the West Coast firm's extensive line of specialty paper products, such as place mats, tray covers, bath mats, and shower mats. In addition, the new machine is capable of printing all types and grades of paper and film, according to Mr. Gray. The press is built to operate at a speed of 750 feet per minute. Productive capacity depends on the width of the web and the caliper of the paper. Mr. Gray estimates that when running a full width web, the machine prints approximately five tons of 30 x 24 inch, 30-pound basis weight sheet during a normal eight-hour shift.





Chemi-mechanical system for pulping hardwoods includes a kollermill for impregnation and a new design of screen.

HiFibre Process of Hardwood Pulping

H. Lance Crosby, and

Noel N. Coe,

Dorr-Oliver, Inc.

Following the pioneer work of the Forest Products Laboratory in the pulping of hardwood species increasing attention has been devoted to hardwood utilization. In the course of an investigation sponsored in the laboratories of Francis H. Snyder and Associates, New Milford, Conn., the suggestion was advanced that hardwood might be pulped by a chemi-mechanical process using lime rather than the more expensive caustic soda. Evidence was presented indicating that, while lime did not soften wood like caustic soda, it did appear to render the chip somewhat friable and quite readily pulped. In addition, yield was increased and effluent disposal simplified due to less extraction of solubles.

Impregnation

Investigative work led directly to studies of a continuous rollermill (The Haug Kollermill) as illustrated. Steeped chips enter at one end and are thrown to the wall by centrifugal force. As the cylinder rotates, they are caught in the nip between the rolls and cylinder both of which are driven. Then as the chips leave the nip they enter a fog of treating chemical. Retention in the mill is controlled by a variable speed transport screw.

The Kollermill achieves nearly ideal conditions for mechanical impregnation in that centrifugal action orients the chips flat to the cylinder wall. The compression is then applied as many relatively gentle squeezes with diminishing clearance each time. This action tends to "pump" the liquor into the chips without shattering untreated wood.

Defibering

Having obtained a thoroughly impregnated chip, the work was directed toward primary defibering methods, and a number of commercial refiners were investigated. It was demonstrated that excellent fiber liberation could be achieved in the Kollermill with indicated net power requirements of approximately ten horsepower-days per ton.

Abstracted from a talk delivered at the annual TAPPI meeting in New York, Feb. 21-25, 1960.

Screening

Cold soda impregnated chips are reduced substantially to pulp in a single pass through the mill; however, for the lime pulp a "closed-circuit" technique is advantageous using a scalping screen. The oversize may be 10-25 per cent of the feed and is returned either to impregnation or the defibering stage.

A unique wedge-bar screen (known as the DSM) was found very effective. Stock is fed to the screen at 0.6-0.9 per cent consistency and at 60-80 ft. per second velocity. Accepted stock passes through the screen at the proper consistency for centrifugal cleaning. The oversize at 2.5 to 5 per cent consistency is returned to the circuit. Further thickening may be required if rejects are high.

Process Evaluation

Based on the above, a pilot plant was installed. For the impregnation stage, pulp is collected leaving the Kollermill and stored for the required time in drums. The chip soaker is then drained and used as a conveyor to feed the defibering Kollermill. The process has also been evaluated on a larger scale in a semi-commercial machine at a pulp mill experimental pilot plant.

Chemical and fiber classification data on mixed Northern hardwoods pulped with lime and with caustic soda show: (1) That the opacity of the unbleached lime pulp is high, indicating a high unbonded fiber surface area. The lime process liberates a fiber with minimum surface attack which would account for this affect; (2) The difference in 1 per cent NaOH solubility between lime and soda pulps is interesting. It is apparent the lower alkalinity removes significantly less carbohydrate material. This is reflected by the chemical oxygen demand (COD) of the filtrate and by the color of the effluent liquor squeezed from comparable unwashed pulps.

N. Y. and Penn. Centralizes Testing and Quality Control Lab

Integration of quality control facilities with paper production at its Lock Haven, Pa., mill has been announced by New York & Pennsylvania Co. The announcement coincides with the centralization of technical control, paper standards and quality control laboratory equipment in a single glass-enclosed "island" located in the heart of the mill. Serving the continuous output of 11 paper machines, the new laboratory is equipped with the latest in quality control and paper-testing instruments.

Temperature in this area is kept automatically within 72° ± 3°, and relative humidity within 50 per cent ± 2 per cent — both in accordance with TAPPI standards. Thus, despite high humidities and temperatures throughout the mill in summer and low humidities in winter, the controlled testing area remains unchanged.

In order to reduce in-and-out traffic of mill personnel bringing machine samples for testing to the new laboratory, a special "receiver," compartmentalized according to machines, is accessible through a small sliding pane in the glass wall.

COLOR ROOM

Within the quality control area a special room is set aside which has been equipped with facilities for visual inspection of color and formation. Referred to as the "Color Room," it features a glass-topped work table along one length. This table lights up from beneath, so that the cleanliness and formation of sample sheets placed on it are immediately apparent. A strip of lights across the back of the table is aimed so that reflection across the sample of paper will give an accurate surface check.

Each sheet is run through the required number of tests in the quality control lab to determine such things as brightness, opacity, strength, mineral content, thickness, bulk, weight, etc. Of interest is the beta-ray sheet weight profiler, which measures variations in weight across a sheet. Other tests are determined by the special requirements of each particular order, but all testing and control facilities are now centralized to be immediately available to manufacturing processes.

Humidity control chart (left) being checked by technician Kermit Showers. In center: Paper Standards Lab, with Charles Kauffman using Glossmeter. Rack for receiving samples direct from paper machines is in rear corner. At right: Beta-ray sheet weight profiler is fed reel sample of paper while graph (at eye-level) discloses variations in weight across the sheet.

Recent Developments In Wet-Strength Resins

Gary C. Grinnell

This article summarizes recent patented advances made in the wet-strength art. The use of urea-formaldehyde resins is emphasized, since they are the most widely used.

The progress of any art is toward perfection, so it might be best to determine the general characteristics of the ideal wet-strength resin and the resin-treated product. The qualities desired in a perfect resin are:

1. Stability on aging and on changes in pH,
2. No corrosive action on the common metals;
3. Infinite dilution in water of any temperature;
4. No affinity for press felts or dryer rolls;
5. High retention;
6. No effect on the resin due to the presence of anions;
7. Low cost;
8. High solids content.

When the ideal resin is incorporated in a product, the combination should have the following characteristics:

1. High wet-strength for the amount of the resin used;
2. Immediate cure upon leaving the dryer section;
3. No decrease in the water absorbency;
4. The broke must be easily pulped.

Typical Resin

The typical commercial urea-formaldehyde resin has a solids content of from 30 to 45 per cent, pH about 7, and is stable for three months storage at normal storage temperatures. It cannot be efficiently added to water cooler than 50° F. Retention is around 50 per cent, and the resin may or may not be adversely affected by the presence of sulphate ions or other anions. The resin has some affinity for the machine felts and dryer rolls. Upon lowering the pH, the resin will jell. The resin has a toxic and corrosive effect due to the presence of free formic acid and free formaldehyde.

The average wet-strength paper product has the following characteristics:

1. Full cure will be obtained by storage at room temperatures for 30 days;
2. The factor wet tensile-dry tensile X 100 equals 20-30;
3. The hot-water extracted pH is from 4.5 to 5.0;
4. The resin content of the sheet is 1-3%;
5. Losses in wet tensile occur due to hydrolysis, the rate being dependent upon the pH and humidity;
6. Repulping of off-machine broke is practical in ordinary equipment.

Advances in 1959

Of course wet-strength resins will never be perfect, and compromises must be made. In some cases, the desired properties are contradictory, and the ideal resin is practically impossible to obtain. This article further describes patented advances made in 1959 and early 1960.

Since cellulose fibers in water take on a negative charge, it is desirable to provide a cationic resin for good retention properties. Keim (1) developed a new urea-formaldehyde resin modified with the class of compounds known as alkylenepolyamines. The inventor found that the resin is substantive to cellulose between the pH limits 4-9. The pH of the resin is 7.2, and the solids content is generally 30-45 per cent.

Driscoll (2) developed a resin with no formaldehyde content to eliminate the effect of formaldehyde on certain photographic emulsions. This resin is hydrophobic requiring addition as an emulsion, and is also cationic, providing good retention characteristics. The resin is a complex composition of copolymers, with styrene forming the largest individual polymer concentration.

Ericks (3, 4) patented a number of aqueous-based compositions used to dimensionally stabilize cellulose. While many of the compositions are not based on urea-formaldehyde resins, the patent covers a process for modifying urea-formaldehyde resins with either ammonium salts of polycarboxylic acids or ammonium salts of hydroxy polycarboxylic acids. The paper product, after treatment, lost up to 50 per cent of its original expansion on humidification.

Powder Form

Wilson (5) obtained a hydrophyllic cationic colloidal urea-formaldehyde resin by modification with a quaternary ammonium compound. The inventor found that the resin has high retention qualities. The resin can be spray dried to powder form for shipment or storage. For mill use, the resin is dissolved in water.

Dunlap (6) developed a composition which imparts delamination resistance and improved wet-strength to paper backing material used in the manufacture of pressure sensitive tapes. A synthetic rubber is precipitated on the pulp at the beater with a patented precipitating agent. This treatment produced a considerable increase in delamination resistance and a similar increase in wet-strength.

Bonzagni (7) patented a resin produced by condensing urea, formaldehyde, melamine, and an alkanolamine. The inventor found that this resin gives high retention, high wet-strength, and good stability. Previous urea-melamine copolymers were unstable and required rigid pH control.

Moynihan (8) developed a paper coating based on urea-formaldehyde resins for the treatment of papers for currency use. The paper is tub sized with a mixture of 10-15 per cent by weight urea-formaldehyde resins, 15-20 per cent by weight glycerol as a plasticizing agent, and the remainder water. The treated product showed an increased tensile, increased resistance to crumpling, and increased fold, while retaining good flexibility.

These developments in 1959 and early 1960 show that resins are becoming more specialized and present new opportunities for product development.

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Hills and valleys may be beautiful... but not for paper coaters

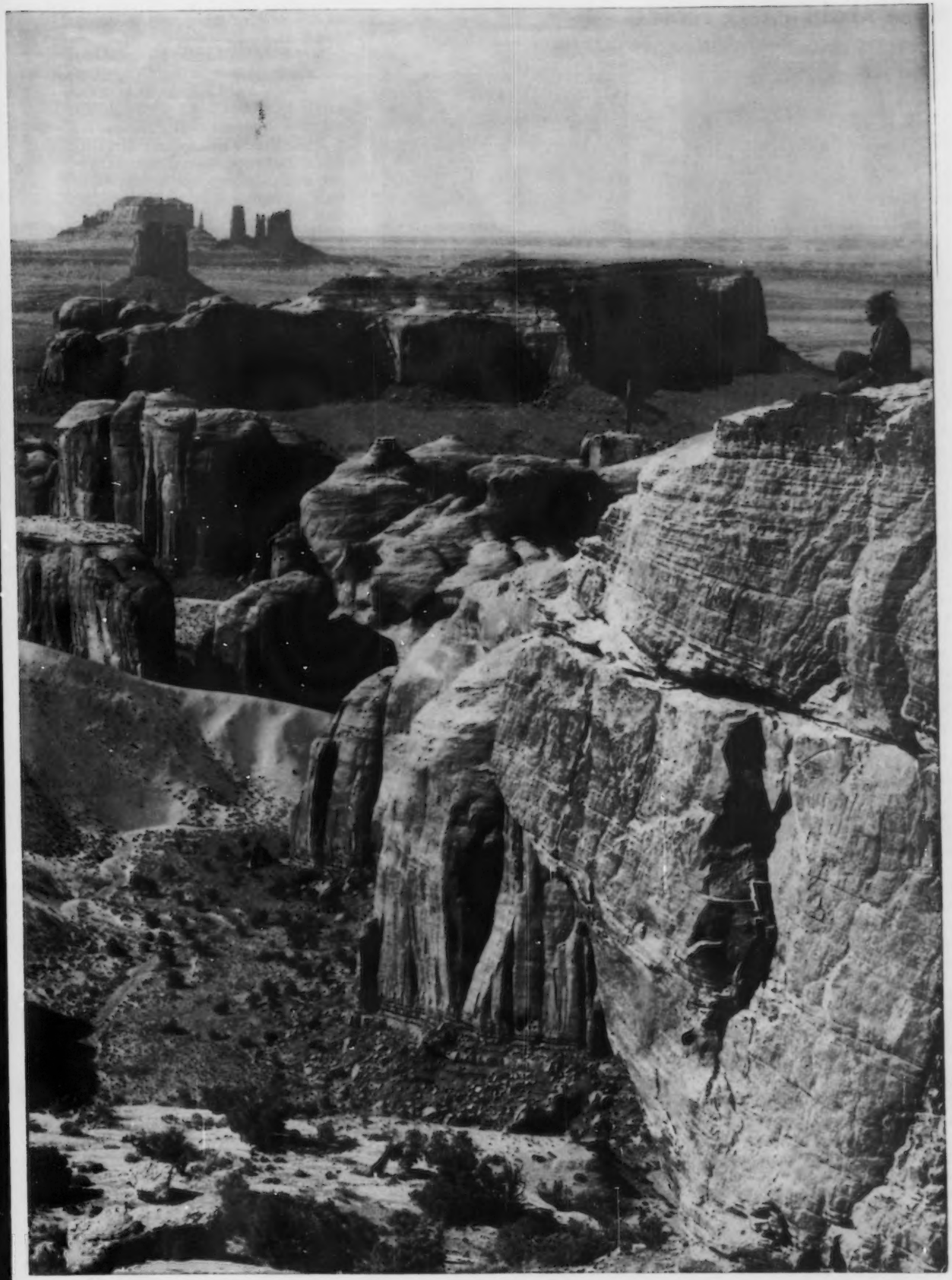
A paper coater might enjoy this view when he is on vacation, but "hills and valleys" are the last things in the world he wants in the paper he has coated. Perfect smoothness is his aim, and competitive tests indicate he has a better chance of getting it with DYLEX® K-54 latex.

DYLEX K-54 is a new Koppers latex for the paper coating industry. In Gurley Smoothness Tests on identical paper coated with a DYLEX K-54 formulation and competitive latices, the paper coated with DYLEX K-54 had substantially higher ratings at all adhesive levels. Both starch and casein were used in the tests.

In addition to superior smoothness, DYLEX K-54 offers higher pick resistance, excellent mechanical stability and less foam. For more information on formulating better clay coatings with DYLEX K-54, write for our free booklet. Koppers Company, Inc., Plastics Division, Dept. PT-30, Pittsburgh 19, Pa.

KOPPERS PLASTICS

KOPPERS



MORE ABOUT PAPER PEOPLE

(Continued from page 14)

R. H. Eggleston

R. H. Greene

Fox Paper Elects New Officers

Richard H. Eggleston, was elected vice president in charge of all marketing activities of the Fox Paper Co. at a meeting of the Fox board of directors.

Mr. Eggleston brings to Fox Paper 25 years of marketing experience in the paper industry. He has resigned from Union Bag-Camp Paper Corp. where he has served in sales to paper converters. Mr. Eggleston was formerly assistant sales manager of Crossett Paper Mills for several years and prior to that spent 18 years with McLaurin-Jones Co. (now Ludlow Papers) where he became vice president, packaging paper sales.

In his new position, Mr. Eggleston will coordinate sales of all of the company's divisions as well as assume responsibility for market research, merchandising aids and participate in new product development responsibilities.

Roderick H. Greene who has been with the company for 20 years has been elected treasurer and sales manager of the Paper Mill Division. Mr. Greene was formerly assistant sales manager of this division.

Frank S. Quinn was elected secretary of the company and promoted to sales manager of the Security Bag Division. Mr. Quinn has served in this department since 1926 and for many years was assistant division sales manager.

George L. Huesing was elected vice president in charge of manufacturing operations of the Security Bag Division. Mr. Huesing has been with Fox Paper since 1927 and for many years has been associated with Security Bag operations. He will direct the new 150,000 sq. ft. plant at Evendale into which Security recently moved.

Chester Drury, vice president and secretary of the Fox Paper Co. and general manager of its Security Bag Division, will retire April 1st.

Mr. Drury came to the Security Bag Co. in 1926 from the old Brown Paper Co. in St. Louis. In 1944 Security Bag became a division of the Fox Paper Co. In the 34 years which Mr. Drury headed the operation, Security has grown from a small manufacturer of grocer's bags to one of the largest manufacturers of notion, millinery and light weight specialty bags in the country. Mr. and Mrs. Drury sail for Europe on April 11 for an extended tour of the continent. Upon his return Mr. Drury will continue to be associated with Fox and Security in a consulting capacity.

H. P. Brodnax

Superintendent Named At Riegel Carolina Mill

Riegel Paper Corp. has announced the promotion of Henry P. Brodnax to paper mill superintendent for the Carolina Division. He replaces B. C. Moore who resigned to join another company.

Mr. Brodnax has had a wide background in papermaking. Before joining Riegel in 1958, he held supervisory positions with Potlatch Forests and International Paper.

E. A. Henry will assume Mr. Brodnax's former position of assistant paper mill superintendent. Mr. Henry was previously pulp mill superintendent and assistant superintendent (technical).

Morley Joins Champion R&D Division

George Morley has joined the Research and Development Division of The Champion Paper & Fibre Co., Hamilton, Ohio, as a senior design draftsman.

Mr. Morley, who attended Drexel Institute of Technology, was previously associated with the engineering departments of The Black-Clawson Co., Inc., Watertown, N. Y.; the Downingtown Mfg. Co., Downingtown, Pa.; and The Moore & White Co., Philadelphia, Pa.

George Morley

CZ Appoints Merchandising Manager

John T. Wolfe, Jr., has been appointed merchandising manager, Industrial Paper Sales Division, Crown Zellerbach Corp.

Mr. Wolfe, together with Wendell McWhinney, who assumed similar duties in the division earlier this year, will assist the division manager with sales, product improvement, and market development during expansion of the division's nation-wide sales programs.

Mr. Wolfe joined Crown Zellerbach in 1949 after graduation from the University of California, Berkeley.

PTJ NEW EQUIPMENT & SUPPLIES

Brightness Uses One Light Source

A recent Canadian development which has completed over a year of extensive field tests is the MEL Paper Brightness Meter, nicknamed "The Paper Doll."

The principle employed is one wherein only one light source and one photocell are used and two light beams switched electromechanically and compared electronically to give an output indication directly in brightness units. The two light beams are (a) a controlled direct beam from light source to photocell, and (b) the light reflected from the paper sample and collected in an integrating sphere.

A combination of filters is employed in the light beam to provide a monochromatic light source at 457 millimicrons in accordance with TAPPI standards T217m48 and T452m48. The paper sample inspected is slightly over 1 inch diameter and serves to minimize the effects of irregularities or surface roughness.

The instrument has been designed for intermittent or continuous use 24 hours per day and has been repeatedly tested by one paper mill for 24 hours per day for over a year with consistently good results. It is calibrated in accordance with the procedure specified in TAPPI standards T452m48 and T217m48, and once calibrated maintains its calibration for long periods. It can be operated by relatively unskilled personnel and gives consistent results, reading directly in brightness units to as close as one-tenth unit.

Regulated transistorized power supply for light source and essentially unaffected by variations in line voltage or frequency, lamps aging, phototube aging and is free from fluctuations usually found in electronic devices. Further information may be obtained from Meltronics, Inc., 1010 North Main St., Elkhart, Ind.

Rappers Cut Maintenance Costs

A line of Navco air "rappers" for electrostatic precipitators and dust collectors has just been announced by National Air Vibrator Co., 435 Literary Rd., Cleveland 13, Ohio. According to the manufacturer, the rappers are made with a patented one-piece design that eliminates 80 per cent of the maintenance problems on precipitators and dust collectors. They have no assembly bolts to stretch and shear, or separate strikink plate to leak air from the housing.

Exhaust parts on both sides of the housing keep the vibrator piston centered, so housing wear is eliminated. The rappers can be arranged with a solenoid valve and timer for complete automatic control. Navco rappers are made for vertical mounting (Model BH-3) or horizontal mounting (BH-3-SP). Units measure 10½ inches long by 5 inches wide by 9¾ inches high, and weigh 52 lbs. Air consumption at 50 p.s.i. is only 9 c.f.m.

MODEL 700 BIG SCALE pH METER is readable to values within .02 pH, reports its manufacturer, Analytical Measurements, Inc., of Chatham, N. J. Weighing but 5 lbs., the meter is portable and can be used wherever a standard 115 volt ac outlet is available. It features single operating control and modulated amplifier, with printed circuitry and sensitive meter elimination. An originally-designed polyethylene probe unit permits the user, it is said, to make pH readings anywhere on the production line.

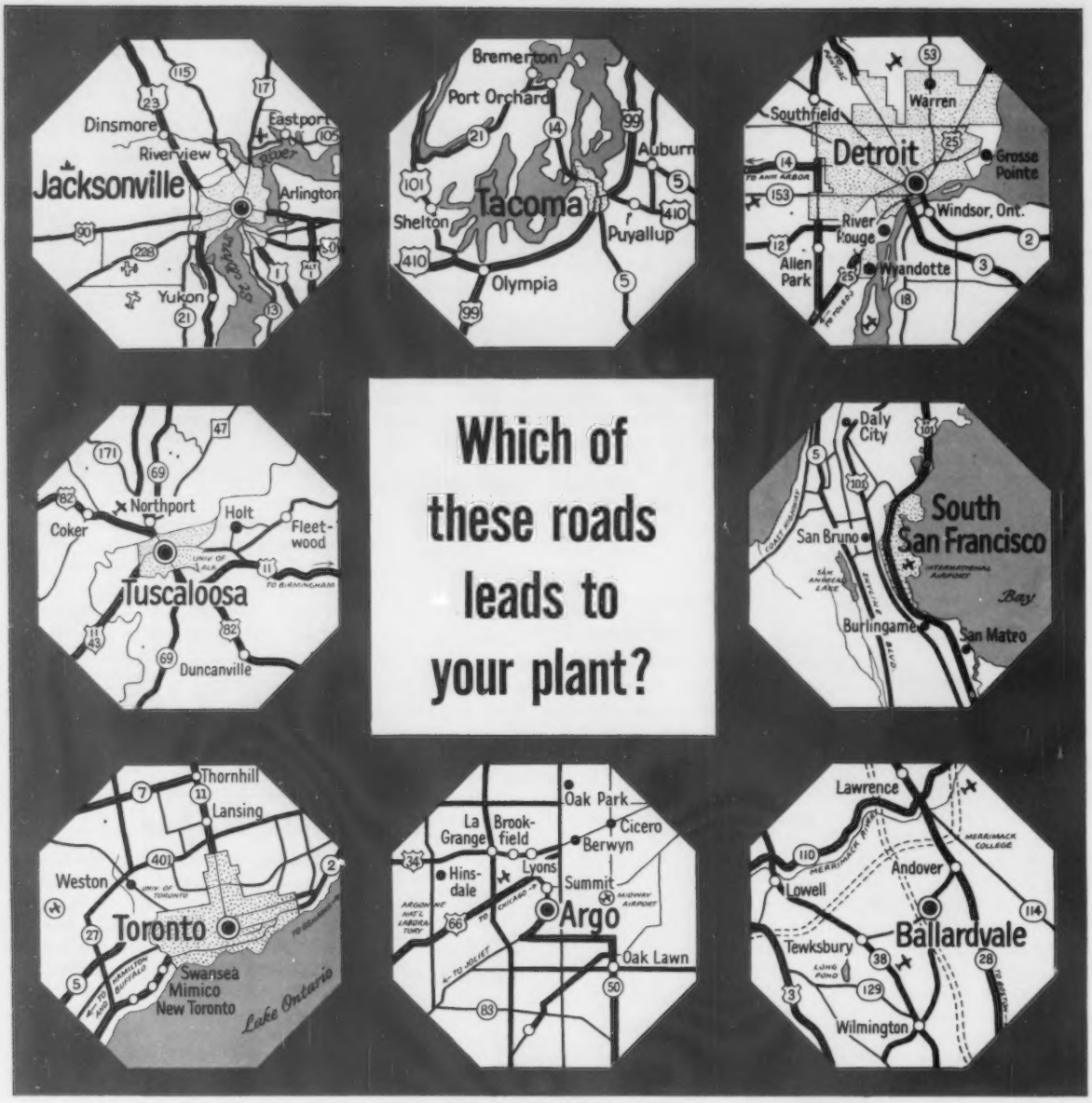
Wet-End Additive Found in Okra Gum

The development of a water-soluble vegetable gum has been announced by the John A. Manning Paper Co., Inc., Troy, N.Y. Derived from okra, the gum is used to provide a domestic deflocculating agent for long fibers in specialty paper manufacturing.

In the mill, okra is prepared directly in a dilute water dispersion, with only gentle agitation required. This dispersion is added to the paper process anywhere from the beater to the head box. In some cases, the amount of okra gum required may be extremely low, notes the company.

The addition of okra gum is said to enhance sheet formation and increases tensile strength by uniform fiber distribution. The ease of preparation is one of the greatest advantages of the okra gum. For highest efficiency and the elimination of residue, 200 mesh gum is recommended. Morningstar-Paisley, Inc., New York, has been appointed exclusive distributor of the okra gum by the Manning Paper Co.

Additional information can be obtained by writing Morningstar-Paisley, Inc., 630 West 51 St., New York, N.Y.



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RESINS FOR STARCH-CLAY COATINGS

OBITUARIES

William Howard Richardson, 81, Glendale, Ohio, retired board member of the Richardson Co., former Lockland paper manufacturing firm, died March 4 in Key West, Fla., while vacationing.

Walter G. Will, 71, died at his home in Hemet, Calif., on March 6. Mr. Will served as chief engineer for Certain-teed Products Corp. and Bestwall Gypsum Co. for approximately 30 years. He retired about two years ago.

Robert Nivison, 80, who retired in 1954 as consultant to the Scott Paper Co., died in his Augusta, Me., home March 9. He was formerly a vice president and manager of mills of the Hollingsworth & Whitney Co., Waterville, which became a division of the Scott company.

Perry D. Taylor, 93, at one time superintendent of Knowlton Brothers paper mill, an Ohio native and a resident of the Watertown, N. Y. area nearly 70 years, died March 14 in Mercy hospital. Death was attributed to a cerebral hemorrhage.

William L. Repley, 66, retired general manager of Warren Pumps, Inc., died suddenly March 14 at his home in West Freeport, Me. He retired in 1958 after 32 years service with Warren.

John E. Gefaell, retired newsprint executive died Sunday after a long illness. He was 69 years old.

In 1935, Mr. Gefaell and Lynn E. Aldrich were instrumental in the reorganization of the old Great Lakes Paper Co. Ltd.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Feb. 13	Feb. 20	Feb. 27	Mar. 5	Mar. 12
1960	98.2r	98.5r	96.9r	97.2r	97.6
	Feb. 14	Feb. 21	Feb. 28	Mar. 7	Mar. 14
1959	38.1	90.9	93.0	91.8	93.9

r Revised

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.7	97.7‡	—	—	—	—	—	—	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	94.0

‡ Preliminary

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	95.0	94.2	95.7	100.5	96.0	88.1	89.7	97.3
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	94.0	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Feb. 13	Feb. 20	Feb. 27	Mar. 5	Mar. 12
1960	96	96	91	94	94
	Feb. 14	Feb. 21	Feb. 28	Mar. 7	Mar. 14
1959	94	94	92	96	93

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	—	—	—	—	—	—	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	97	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	*THIS WEEK ENDING Mar. 12, 1960	LAST WEEK ENDING Mar. 5, 1960	CUMULATIVE TO DATE Jan. 1 to Mar. 12, 1960 incl.
% Activity	94%	94%	93%
Total	319,033	330,475	3,175,025
Containerboard—Domestic Use	167,925	169,637	1,645,365
Liner	113,807	112,913	1,100,936
Corrugating Material	48,744	50,921	492,812
Chip & Filler Board	5,374	5,803	51,617
Boxboard—Domestic Use	96,523	101,739	977,094
Folding	58,827	60,221	579,332
Set-Up	10,961	11,480	115,793
Special Food Board	26,735	30,038	281,969
Other Paperboard	54,585	59,099	552,566
Containerboard Type	18,051	17,026	150,015
Boxboard Type	36,534	42,073	402,551
Total Orders			
Received	292,018	365,868	
Unfilled End of Week	459,954	488,510	

RODNEY HUNT
SHAF-TITE® ROLLS
METAL ■ RUBBER ■ WOOD ■ PLASTIC
RODNEY HUNT MACHINE CO., 10 MAPLE ST., ORANGE, MASS.
Exclusive U. S. Agents for FILLED CALENDER ROLLS made by David Bentley, Ltd., Manchester, England

PJT NEWS OF SUPPLIERS

PERSONNEL who direct Stowe-Woodward Rubber Roll Seminars

Stowe-Woodward announces a new form of sales service. The service is the S-W Rubber Roll Seminar. It's a three-part program which gives the audience of mill operating personnel an abbreviated course on the "Why and Wherefores of Rubber Covered Rolls." The results have been of substantial value to the paper mill people and more than gratifying for the company.

The man behind the Rubber Roll Seminar at Stowe-Woodward is F. L. Phelps, product sales manager. A typical Stowe-Wooward seminar is conducted by personnel from the technical service, research and development, and sales departments. Each is assigned a specific area to cover. The agenda itself is varied to meet the needs of the particular audience. In the course of a year, S-W will hold 10 to 12 seminars in different parts of the country.

A typical seminar goes something like this: An introduction of the Stowe-Woodward personnel and a brief explanation of the program. This is followed by a color slide presentation depicting the various steps taken in the manufacturing process.

The program now turns to a discussion of rubber—its basic parts and characteristics, by the research and development department. Here, the answers to many of the questions concerning the specific chemical and physical properties of natural rubber and the various synthetic elastomers are given, together with comprehensible explanations of the terminology peculiar to the rubber roll industry.

At this point, the technical service department focuses its attention on the technical aspects of the operation of a rubber roll. Nip Width Studies, a comparatively new part of the program, are presented by the technical service staff and research engineers.

The program now turns to a discussion of new product developments. In view of the interest shown in coating, additional time is spent on roll coverings made specifically for this purpose. As an example, Teflon, coating for dryer rolls, is a focal point.

S-W is scheduling more roll seminars for 1960. Paper mill people interested in attending a Rubber Roll Seminar may contact Stowe-Woodward at Newton Upper Falls, Mass.

Goodyear Tire and Rubber Co., Akron, Ohio, has announced the appointment of George T. Wingate as senior sales representative in the Chemical Division.

Mr. Wingate will be assigned to the division's Philadelphia district but will cover primarily the Washington, D. C., and Baltimore areas for the division's line of synthetic rubbers, latices, plastics and chemicals. Prior to joining Goodyear, he was associated with a leading heel and sole manufacturer as purchasing agent.

G. T. Wingate

W. W. Biven

Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio, a division of Thor Power Tool Co., has appointed William W. Biven as manager of roll sales.

Mr. Biven, a 31-year veteran employee, has spent over 15 years as sales representative in the Cincinnati and Miami Valley areas. He will continue in close personal contact with accounts in this vicinity and also direct sales efforts on a national basis. The creation of this new position is in line with Cincinnati Rubber's growing importance in paper mill roll sales. The local company has one of the few roll covering plants fully equipped to handle the huge rolls used on the newer paper-making machines. The division which Mr. Biven heads will serve not only to promote sales, but also to provide technical field service.

Dow Chemical has appointed A. F. Beale, Jr., director of research for the Dowell Division. He succeeds W. W. Lowe, who becomes research consultant.

Dr. Beale, who has been with Dowell since 1953, did his under-

Alvin H. Johnson & Co.

INCORPORATED

Consulting and Designing Paper Mill Engineers

415 LEXINGTON AVENUE NEW YORK 17, N. Y.

PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

REPORTS APPRAISALS ESTIMATES AND SURVEYS

graduate work at the University of Richmond. He holds M.S. and Ph.D. degrees in chemistry from the University of Michigan. For the past two years he has been director of chemical research. He came to Dowell from the Michigan Memorial Phoenix Project at Ann Arbor. Prior to this he filled various teaching positions at the Universities of Wyoming, Toledo and Richmond.

Scott Testers, Inc., manufacturer of a broad line of physical testing equipment, has appointed Rolla H. Taylor as sales manager. Mr. Taylor has been with Scott since 1953—first as sales engineer, and since 1958, as assistant sales manager. In his new sales management capacity, Mr. Taylor will have charge of sales of Scott testing equipment to the rubber, textiles, paper, leather, plastics, wire, and leather industries throughout the U.S. and in over 60 foreign countries.

R. A. Taylor

T. W. Morningstar

Morningstar-Paisley, Inc., announces that the board of directors has elected Thomas W. Morningstar executive vice president. Mr. Morningstar has been serving as vice president and general manager of the M-P Gum and Technical Products Department. This department was formed last year to provide expanded sales and technical service to processors and manufacturers who use gums, starches, and other specialty items for stabilizing, thickening, binding, gelling, sizing, coating, flocculating encapsulating, etc. Mr. Morningstar will continue to serve in this capacity.

Mr. Morningstar will work closely with Murray Stempel, Morningstar-Paisley president, to implement the firm's current expansion program.

Also announced are the appointments of David Bookshester as sales manager, Adhesives Division; Iven G. Nichol as sales manager, National Accounts; and Joseph C. Hotton as engineer in charge of machinery service.

Mr. Bookshester is currently Mid-Western sales manager located at the firm's Chicago plant. His new duties will be broadened to encompass the overall sales direction of adhesives and related chemical products to all areas of the United States.

Mr. Nichol was formerly assistant sales manager, Eastern division. His new duties will be to direct the firm's technical and sales relationships with all adhesive users who operate branch plants in various areas of the country.

Mr. Hotton, formerly sales manager of the F. B. Redington Co., brings to his new position more than 25 years' experience in the machinery field. He will coordinate the efforts of the sales and technical departments with machinery manufacturers and their customers.

E. I. du Pont de Nemours & Co. has named Marcus D. Haney assistant manager of the Southern district office of the Du Pont Dyes and Chemicals Division in a series of changes involving sales and technical positions in various district offices of that division.

Mr. Haney, a native of Rock Hill, N. C., will supervise all Southern district sales and technical service on products other than dyes. Dye sales remain under the direction of H. H. Field and W. F. Crayton as assistant managers of the dyes sections of the district office.

Other changes in the Southern district, which embraces offices in Char-

Just Like Panning for Gold!

You'll get exceptionally low "first cost"
You'll use minimum power
You'll need less maintenance
with the
Kalamazoo "Side Hill" Washer

These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and savealls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
Laboratory size units are available for experimental purposes in determining the proper angle and screen mesh.
Write today for information on capacities and cost estimates.

WOOD TANK DIVISION
Kalamazoo TANK & SILO CO. 859 HARRISON ST. KALAMAZOO, MICH.

lotte and Atlanta, include the following named to the positions indicated:

Atlanta—J. J. Barnhardt, Jr., sales and technical supervisor for dyes; J. H. Stradley, technical consultant.

Charlotte—J. V. Killheffer, technical supervisor, dyes; N. R. Viera, technical consultant, dyes.

J. M. Remsen has been named technical supervisor, in addition to his present duties as sales supervisor, in the division's Chicago district office, while in the New England district office, J. W. Killheffer has been appointed technical supervisor and E. H. Gamble has been named technical consultant. In the Philadelphia district office, S. H. Loper has been named technical supervisor; P. L. Speakman, technical consultant, and R. L. Riley, office supervisor.

New York district office changes include appointment of B. F. Quigley as technical supervisor. H. Y. Simerson and J. S. Thackrah, both of whom have been associated with the New York office, have been transferred to the division's Technical Laboratory at Deepwater, N. J., as research chemists.

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When planning new pulp and paper facilities consider our "package" contract. It provides a single source for site study, design and construction.

Ask for details.

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Prices of Fibers

MARKET WOOD PULP

FIRST QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED MARCH 15

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	n.a.
3	$7.50/7.00	$8.50/7.75	$7.50/7.00	n.a.
4	7.00/6.25	7.25/6.25	6.50/6.25	n.a.
5	6.25/5.75	6.00/5.50	6.00/5.50	8.50/7.00
6	5.75/4.75	5.25/5.00	5.25/5.00	6.50/4.50
7	4.75/4.25	4.50/4.00	4.75/4.00	4.25/4.00

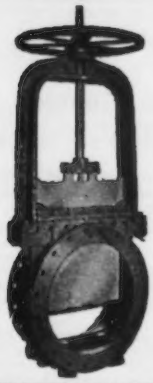
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Mar. 21	Mar. 21	March	March
No. 1 Mixed Paper	$ 7.00/ 9.00	9.00/ 11.00	8.00/ —	12.00/ 13.00
No. 1 News	14.00/ 15.00	14.00/ 15.00	16.00/ —	14.00/ —
Overissue News (Lg. size)	13.00/ 15.00	13.00/ 15.00	21.00/ —	19.00/ 20.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	11.00/ —	14.00/ 15.00
Old Corrugated Containers	22.00/ 23.00	21.50/ 22.00	20.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	22.00/ —	32.50/ 35.00
White Newsblanks	50.00/ 55.00	50.00/ 55.00	40.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	57.50/ 60.00	60.00/ —	70.00/ 75.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White nv. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	45.00/ 47.50	45.00/ 47.50	50.00/ —	40.00/ 45.00
Manila Tab. Cards	65.00/ 67.50	65.00/ 67.50	70.00/ —	70.00/ 75.00
No. 1 Col. Ledger	37.50/ 42.50	37.50/ 42.50	42.50/ —	29.50/ 32.50
White Ledger	50.00/ 55.00	52.50/ 57.50	52.50/ —	55.00/ —
Mixed Book & Mag.†	22.00/ 25.00	— / —	14.00/ —	— / —
No. 1 Books‡	19.00/ 21.50	17.00/ 19.00	30.00/ —	16.50/ 18.50

† Includes Time & Life; no coarse groundwood. § Not to exceed 10% of groundwood.



RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.

CUT PLANT MAINTENANCE!

Automatic
LUNKENHEIMER OILERS
eliminate costly hand labor!

Fig. 1834 Constant Level Oil Control

Fig. 1815 Globe Body Bottle Oiler

Fig. 1300 Sight Feed Oil Cup

Labor costs are far too high to permit economical hand-oiling—yet valuable bearings must be protected against damage! Install Lunkenheimer Bottle Oilers, Oil Cups, or Constant Level Oil Controls to feed oil automatically—prevent over-supply, leakage, spatter. Request literature from your Lunkenheimer Distributor or write The Lunkenheimer Co., Box 360, Annex Station, Cincinnati 14, Ohio.

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THE ONE *Great* NAME IN VALVES

TEST TIPS
FROM THE SCOTT LABORATORY

MEASURE INTERNAL BOND STRENGTH
with the Scott Model B Tester

Designed cooperatively by Sisalkraft Corp. and Scott Testers, Inc., the Model B Tester offers a faster and simpler method of determining the internal bond strength of paper products. A unique feature of the Model B on production and research work is that it enables the technician to prepare for accurate testing of *five* samples simultaneously. Each sample is split by the impact of a free-swinging pendulum. Direct reading of test values is indicated on a dial recorder. The tester is supplied complete with fixtures for preparing five samples, and two ranges, 0-.250 and .100-.500 ft. lbs. Get complete facts —write for Model B Brochure. SCOTT TESTERS, INC., 51 BLACKSTONE ST., PROVIDENCE, R. I.

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THE SURE TEST... SCOTT!

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DESIGN PROJECT ENGINEERS

Outstanding opportunity for graduate Mechanical Engineers with a minimum of 5 years' experience.

Complete responsibility for the design and development of machinery and equipment to be manufactured and sold by the Bolton-Emerson organization.

Scope includes experimentation and evaluation in fully equipped pilot plant and laboratory, basic design, prototype and final design.

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MECHANICAL ENGINEER ELECTRICAL ENGINEER

South's largest newsprint manufacturer has permanent positions available for graduate Electrical and Mechanical Engineers to age 35. Duties are in Mill Engineering Department and include design, cost estimation, equipment selection and layouts, compiling reports, and general engineering work as required in the pulp and paper industry. Prefer applicants with 2 to 5 years pulp and paper mill experience. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. All replies will be treated in confidence. Submit summary of experience to:

Industrial Relations Department

BOWATERS SOUTHERN PAPER CORPORATION
Calhoun, Tennessee TF

Mechanical Engineers Industrial Engineers Chemical Engineers

Eastern Maine Paper Company has permanent positions open for graduate Industrial Engineers, graduate Chemical Engineers and graduate Mechanical Engineers. Two to five years pulp and paper mill experience desirable. Starting salary based on education and experience. Liberal insurance, retirement and vacation programs.

Submit resumes to:

Personnel Department
St. Croix Paper Company
Woodland, Maine

A-18

CHEMIST or CHEMICAL ENGINEER WANTED

Graduate, with three to five years' experience in the pulp and paper industry, for an integrated bleach kraft pulp and specialty paper mill. Involves work in mill control and/or process control and development. Opportunity for a competent and ambitious man to advance to positions of greater responsibility. Excellent benefits and good starting salary. Please furnish complete particulars as to experience, education and reference to:

Box 60-59 care Paper Trade Journal.
A-11

DRYDEN PAPER COMPANY, LIMITED

Requires one Graduate Mechanical Engineer, 3-7 years Pulp and Papermill Experience. Steady Employment.

Comprehensive program of employee benefits including pension plans.
Pay commensurates with experience.

Please apply to Personnel Supt.—Dryden Paper Company, Limited, Dryden, Ontario, stating age, qualifications, experience, and personal details including phone number.
M-28

BOARD SALESMAN

An excellent opportunity to represent a large midwestern mill in marketing kraft liner board and corrugating medium in central United States. The man we seek must be an experienced mature salesman with an established record of accomplishment. Salary open.

Address replies to: Box 60-52 care Paper Trade Journal.
M-28

FOREMAN WANTED

Experienced in conversion of cellulose wadding and facial tissue, metropolitan area, excellent salary and future. Write Box 60-45 care Paper Trade Journal.
M-28

ARE YOU BLOCKED?

Alert and rapidly growing company in paperboard packaging field needs aggressive young plant engineer for expanding midwest division producing corrugating medium.

Will assist consultants in installing new Fourdrinier, pulping and power equipment, then assume full responsibility of the position with emphasis on operation and maintenance. Report to general manager of the division. Preferred age 26-38.

Wonderful opportunity for young man who has some experience with similar duties but is now blocked in his own company. Excellent starting salary and benefits. Unusual opportunity for advancement in both salary and position.

Write giving personal details, education, experience, salary expected, etc., to E. H. Reed, Corporate Industrial Relations Director, Stone Container Corporation, Chicago 32, Ill.
M-28

FOR SALE

BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings, with motor

COATER
1—42" Chapman Extrusion Type Coater

CONSISTENCY REGULATOR
1—Poirer Stainless Steel, new condition

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS
1—30" diameter x 72" face.
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face.
3—36" diameter x 90" face, 18" diameter couch rolls.
2—36" diameter x 100" face, anti friction bearings.
3—42" diameter x 106" face.
2—60" dia. x 170" face.

DISINTEGRATOR
1—Shartle 8" disintegrator (new) with 125 horsepower induction motor (totally enclosed)

DRIVES
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)

DRYERS
1—16" diameter x 54" face (steel).
1—28" diameter x 84" face.
2—30" diameter x 48" face with bearings.
2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit.
1—36" diameter x 44" face.
4—36" diameter x 76" face.
1—36" diameter x 84" face, and gear.
20—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings.
2—48" x 60" face with frames, gears & bearings
1—48" x 96" face.
2—48" x 108" face, with bearings & gears, 125 lb. pressure.
6—48" diameter x 130" face.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—51½" 3-roll Smoothing Calender.
1—57" 3-roll Embossing Calender.
1—62" 2-roll Embosser.
1—90" 2-roll Smoothing Calender.

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—8 Plate "Packer".
1—12 Plate "Packer".
2—12 Plate "Packer" Stainless Steel Vats

FOR SALE

HOGS
2—Mitts Merrill Type 15 C. F.

JORDANS
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Monarch, Type D, anti friction bearings.

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
2—12" x 12" Sheet Molds.
1—Washer for 5 lb. Beater.
1—24" Saveall, stainless steel.
1—20" Fourdrinier Wet End & Press Section.
2—8" x 8" Valley Sheet dryers.
1—12" x 12" Valley Sheet dryer.
1—Experimental Digester (High Pressure).
1—5 lb. Valley Beater.
1—15 lb. E. D. Jones Beater.
1—8" x 8" Valley Hydraulic Press.
1—Greene Freeness Tester.
1—Cady Micrometer.
1—High speed Jordan, anti-friction bearings.
7—Mullen Testers.
1—2 qt. Auto Clave, Stainless Steel.

LAMINATING MACHINES
2—84" Asphalt laminators.

LOG SPLITTER
1—Carthage 4-way, Hydraulic Log Splitter.

MISCELLANEOUS
1—#1 Miami Selectrap.

MOTORS
4—25 h.p. Westinghouse, totally enclosed, ball bearing. 705 r.p.m

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 12" x 100".
1—Chilled iron, chrome plated 10" x 74".

PULPER
1—#1 Jones Pulp Master.

PUMPS
1—Economy Fan Pump 6000 g.p.m., 20' head, 50 h.p. motor.

REELS
1—72" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—116" Downingtown, 2 bowl, anti friction bearings.
1—123"—3 bowl Revolving Reel.
1—134" 2 drum.

REFINERS
1—Rice Barton Dynofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor.
1—double disc Bauer Refiner, with 2-150 h.p. motors.
1—double disc Bauer Refiner, with 2-50 h.p. motors.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screens, copper vats.
7—Trimbey, Senior Knotter Screens.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—24" Continuous Saveall, stainless steel.
1—LaMorte, 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
2—Savealls, Rice Barton, cast iron vats, cylinder molds 42" diameter x 128" face, complete with 18" diameter couch rolls, all in very good condition.

SHEETERS
1—44" Spot Sheeter Complete
1—60" Hamblet with layboy.

SHREDDER
1—16" "Swift" Paper Shredder.

FOR SALE

SLITTERS & WINDERS
4—42" Cameron Type 6.
1—42" Cameron Type 40-2.
3—50" Cameron Type 6.
3—52" Cameron Type 9.
1—56" Cameron Type 26-3A.
1—62" Cameron Type 6
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—102" Cameron Type 18, 60" diameter.
1—122" Cameron Type 18, 60" dia. antifriction bearings.
1—64" Waldron, Shear cut.

SLITTING DEVICE
84"—Quick change slitting device shear cut, complete, practically new.

STOCK PUMP
1—10 x 20 Shartle Triplex.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127½" face 26" diameter.
1—Beloit 26" diameter by 120" maximum suction width, new 1955.

SUCTION COUCH ROLL
1—Beloit 26" diameter by maximum suction width, new 1955.
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The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposal. The committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part if, in its opinion, such action would be in the interest of the Government.

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THOMAS PAPER STOCK CO.
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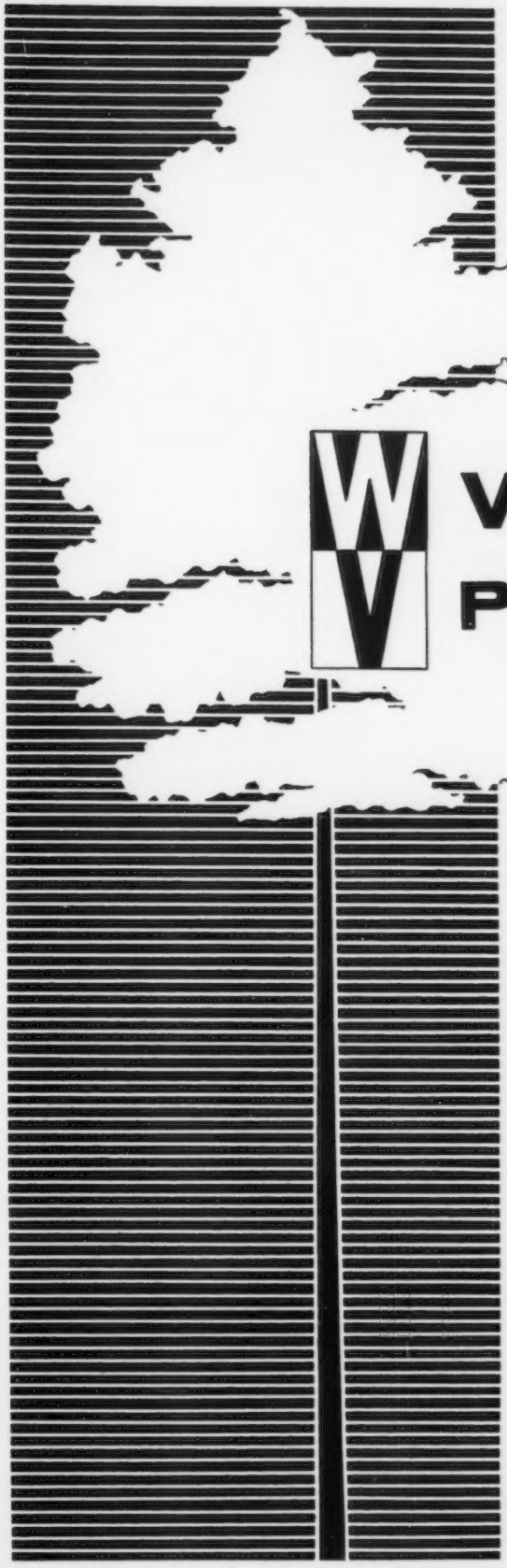
HUGHES PRINTING CO.
EAST STROUDSBURG, PA.



West Virginia Pulp and Paper

Manufacturers of these sulphate woodpulps:

Sterling Bleached

Clear Spring Bleached

Kraftsman Prime Unbleached

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WOODPULP AND EXPORT SALES DIVISION

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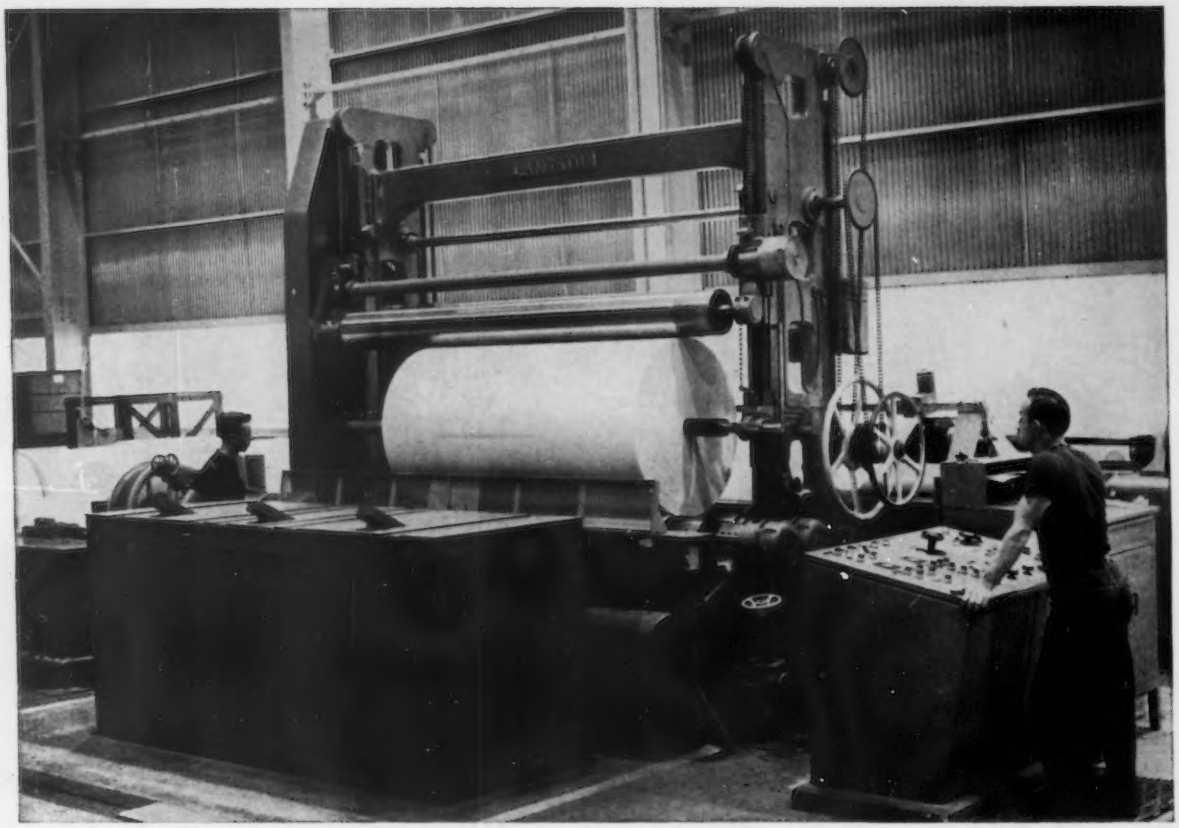


One of the two 104-in. Langston Slitters and Winders in the Glatfelter mill completing rewind. Roll drop table in foreground is up, ready to receive roll when ejected by the winder, and chocks are in raised position to stop the roll. Note console incorporating all major indicators and controls.

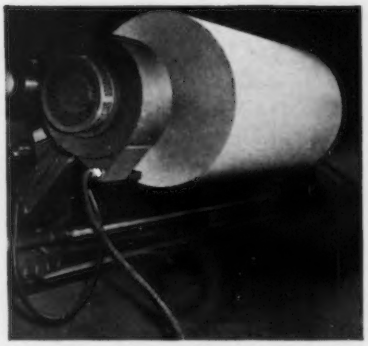
Langston Slitters and Winders turn out tight, even rolls at Glatfelter Mill

Two 104-in. Langston Slitters and Winders have been working in the new mill of P. H. Glatfelter Co., Spring Grove, Pa., for more than a year. They have proved themselves in round the clock production on grades from fine papers to book.

One of the most important features, according to the company, is the constant tension unwind control on the Langston Shaftless Roll Stand, which keeps the tension constant throughout the winding operation. Perfect rolls can be turned out from 9 to 100-lb. stock in roll widths from 7½ to 104 in.

The equipment can be quickly loaded and lined up on the back stand and is designed for easy threadup and gang slitter setting. Hydraulic roll ejectors move the finished rolls quickly from the winding position to the roll drop. Other features include shearcut slitters to eliminate dust; many interlocked controls for extra safety; automatic edge guide control to allow precision trim rewinding of narrow and salvage rolls.

Find out how Langston Slitters and Rewinders can benefit you. Write SAMUEL M. LANGSTON CO., 6th & Jefferson Sts., Camden 4, N.J.



Langston Shaftless Unwind Stand eliminates back-breaking, time-consuming task of hoisting heavy shafts into place. Hydraulically operated arms reach out, pick up the roll, and raise it into running position—a 1-man, pushbutton operation.

LANGSTON Leadership...by design